SEARCH REQUEST FORM

Scientific and Technical Inf rmation Center

	Requester's Full Name: Minufull Examiner #:	
	Art Unit: 1645 Phone Number 30 5 3394 Serial Number 10 10 10 10 10 10 10 10 10 10 10 10 10	d (circle): PAPER)DISK E-MAIL
	8E/2 If more than one search is submitted, please prioritize searches in ord	er of need.
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	Please provide a detailed statement of the search topic, and describe as specifically as possib Include the elected species or structures, keywords, synonyms, acronyms, and registry numb	ole the subject matter to be searched. pers. and combine with the concept or
	utility of the invention. Define any terms that may have a special meaning. Give examples	or relevant citations, authors, etc, if
	known. Please attach a copy of the cover sheet, pertinent claims, and abstract.	
	Title of Invention: Recombinant P37/FLAA as a Do	1
,	Inventors (please provide full names): Kobert D. Grimore Jr	Barbara J. B. Johnson
	Earliest Priority Filing Date: Jan. 8, 1998	<u> </u>
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	*For Sequence Searches Only * Please include all pertinent information (parent, child, divisional, appropriate serial number.	or issued patent numbers) along with the
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SUMMARIES

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TITLE
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Borrelia
AE001168
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Fraser,C.M., Casjens,S., Huang,W.M., Sutton,G.G., Clayton,R., Lathigra,R., White,O., Ketchum,K.A., Dodson,R., Hickey,E.K., Gwinn,M., Dougherty,B., Tomb,J.F., Fleischmann,R.D., Richardson,D., Peterson,J., Kerlavage,A.R., Quackenbush,J., Salzberg,S., Hanson,M., van Vugt,R., Palmer,N., Adams,M.D., Gocayne,J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Salzberg,S., Hanson,M., van-Vugt,R., Palmer,N., Adams,M.D., Gocayne,J.D., Weldman,J., Utterback.T., Watthey,L., McDonald,L., Artlach,P., Bowman,C., Garland,S., Fujil,C., Cotton,M.D., Horst,K., Roberts,K., Hatch,B., Smith,H.O. and Venter,J.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (12-DEC-1997) The Institute for Genomic Medical Center Dr, Rockville, MD 20850, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Nature 390 (6660), 580-586 (1997)
98065943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Genomic sequence of a Lyme disease spirochaete,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hanson,M., van Vugt,R., Palmer,N.,
Venter,J.C. et,al.
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                                                                                                                                                                                                                                                                                                                                                /organism="Borrelia burgdorferi"
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                                                                                                                                                                                                                                                                                                                   ′gene='
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.1100
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                                                                                          protein (flaA)"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-DEC-1997
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KLTAIDNDLSKVVETSRLVFSESEIGISEIYSRNSFEQSPGVYKFKSEILSNVLFEYS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NLWGADCLEEFKNEIVESRLSFMNNLNSIFNVLEIGCGSGKETMALANALSEYYVKPF
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.6146

BB0672"

. 6146

. 5666

protein

(chex)"

98.76;

5666

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KNYIKILLLKVLVIKYCFEKGIELTTKNIESTSKAISNDTDFLDEKTAKLIIESFFK
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EKVKKIINKNQEIK"
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/db_xref="GI:268663"
/translation="MKIQIIIMLLALLDEPLNARLLDISIEKRADEEIKKYSSYNLIL
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complement(6187. .6702)
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/protein_id="AAC67026.1"
/db_xref="GI:2688609"
                                                                                                                                                                                                                                                                                                                                                                                              putative"
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ISNEMIFFPRE"
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identified by sequence similarity; putative"
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identified by sequence similarity; putative"
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attctgatattgacagtgagtctgtatttaaagtttatgagactagcgggaactgaatccc
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                                                                                                         caagtaaaatgagatttaaaggcttttagagtttcaaagtcacacagttcaaaagttaaaa
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                                                                                                                                                                                                                                                                                                                                                                                                   Hanson, M., van Vugt, R., Palmer, N., Venter, J.C. et.al.
Genomic sequence of a Lyme disease burgdorferi
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fraser, C.M., Casjens, S., Huang, W.M., Sutton, G.G., Clayton, R., Lathigra, R., White, O., Ketchum, K.A., Dodson, R., Hickey, E.K., Gwinn, M., Dougherty, B., Tomb, J.F., Fleischmann, R.D., Richardson, D., Peterson, J., Kerlavage, A.R., Mackenbush, J., Salzberg, S.,
                                                                                                                                                                                                                                                                                                                                                                     Nature 390 (6660), 580-586 (1997) 98065943
                                                                                                                                                                            Submitted (12-DEC-1997) The Institute for Medical Center Dr. Rockville, MD 20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 burgdorferi
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                                                                                                                                                                                                             Submission
/note="similar to SP:P54304 PID:1303805 GB:AL009126 percent identity: 25.62; identified by sequence similarity; putative"
                                                                /gene="BB0656"
84. .1217
                                                                                                /organism="Borrelia
/db_xref="taxon:139"
84. .1217
                                                                                                                                                             Location/Qualifiers
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                                                                                                                                                                                                                                                                                                                                                                                                                                                   Adams, M.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                   spirochaete,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complete genome.
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RGKISSSGDVISLKDVLBVYDFEVTAFTKPNTEFSISEDLDVIKIFEDVDKF
ERITYGVEDVKEEKKRAFKRIYELSQPYMPSKRIPYQVGFRHLSVISQIFENNINKIL
NYLKNVQEDQKDKLINKINCAINWINDFAPEDFKFSLRSKFDNMEILEENSKKAINEL
NYLKNVQEDQKDKLINKINCAINWINDFAPEDFKFSLRSKFDNMEILEENSKKAINEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     identity:
putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="ribose 5-phosphate isomerase (rp1)"
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complement(2853...4418)
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GIDRFEKITSKYV"
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2024. .2785
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39.53; identified by sequence similarity; putative"
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ANNHLVTFELLEDLEFFVYHFIQGLGTIQGVSLRALRLRFEYNEKQFFQFINYCSTLS
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SHLKRDLKELLSYMPEHICFSDFICEEEGFVLRDFDNSIDSEKLMFCALECLESNGYI
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IIKTLYIKHVDFCLSRQDNLKFIFTSLSKYINLELLEEFTLEIIPGYVDFEKFKLLDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="similar to
identity: 33.14; i
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/note="similar to GB:M14658 SP:P06616 PID:416295 PID:42767

complement (4505.

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complement(6736. .7419)
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complement(6736. .7419)
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                                       EELQEIKAQ"
7462. .8421
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6278. .6727
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5848. .6258
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MLEIIKNSKIKFLVILNKIDLKNTKIKEITQFLKEKGIEDSNIIKISAEKKINTEELK
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7462. .8421
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                                                                                                                                                                                                                                                                             putative"
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/note="hypothetical
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/note="hypothetical
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            attcttttaataatggtgatta-----taatgaatcttttgatgttaaggtcaatc 291
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                al Similarity
456; Conserv
         Direct Submission
Submitted (03-OCT-1995) I.G.
Mycology, 28 rue du Dr Roux,
                                                                                                                                                                                                                                          x91907
x91907.1 GI:1019753
                                                    01d, I.G.
                                                                             98438936
                                                                                                        disease
                                                                                                                    A cheA cheW operon in
                                                                                                                                 1 (bases 1 to 332)
Trueba, G.A., Old, I.G.,
                                                                                                                                                                                       Borrelia burgdorferi
                                                                                                                                                                                                                           cheA gene;
                                                                                                                                                                                                                                                                   B.burgdorferi cheA
                                                                                                                                                                                                                                                                                 BBCHEAGEN
                                                                                           Res.
                                                                                                                                                                        Bacteria; Spirochaetales;
                                                                                                                                                           burgdorferi
                                                                                                                                                                                                  Lyme disease spirochete.
                                                                 (bases 1 to
                                                                                        Microbiol. 148
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /transl_table=11
/product="B. burgdorferi predicted coding region BB0665"
/protein_id="AAC67011.1"
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/translation="MRLPGSGYSYTVIQSKNNYSQKSSFGISFVILSRGTKIFREDLF
/translation="MRLPGSGYSYTVIQSKNNYSQKSSFGISFVILSRGTKIFREDLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="hypothetical protein; identified by Glimmer;
putative"
Location/Qualifiers
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                                                                                                                                                                                                                           cheA protein;
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Pred. No. 8.9e-50;
                                                                                                                      Borrelia
                                                                                                                                 Saint Girons, I. and Johnson,
                                                                                                                                                                                                                                                                                 DNA
                                                                                                                                                                                                                            chemotactic response
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                                                                                           191-200
            .G. Old, Institut Pasteur, ux, 75724 Paris cedex 15,
                                                                                                                                                                        Spirochaetaceae;
                                                                                                                    burgdorferi,
                                                                                          (1997)
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                                                                                                                                                                                                                                                                                   BCT
                                                                                                                                                                          Borrelia;
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                                                                                                                                                                                                                            protein;
                                                                                                                    agent
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                          Bacteriology
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                                                                                                                    of Lyme
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Best Local Similarity 97.6%;
                ORGANISM
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                                                                                                                                                                                                                                                                                                                           ttctatcgctgaaggctctttccaaaactttgtagaaaagattgagagtgaaaaacctga 1476
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                                                               BBU28962
Borrelia
U28962
             Lyme disease spirochete.
Borrelia burgdorferi
                                                      U28962.1
Bacteria; Spirochaetales; Spirochaetaceae; Borrelia; Borrelia
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                                                    GI:1113814
                                                                             burgdorferi
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<1. .202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="histidine kinase"
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/db_xref="SWISS-PROT:044737"
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37 c 61 g 104 t
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270. .>332
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/db_xref="taxon:139"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=2
/transl_table=11
/protein_id="CAA63001.1"
/db_xref="GI:1019754"
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/transl_table=11
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/function="chemotactic response"
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/translation="DSDIDSESVFKVYETSGTESLRKLKAHETFKRVLKLREKISIAE
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                                                                                         2700 bp
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                                                                             histidine
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Pred. No. 2.5e-33;
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                                                                           kinase (cheA) gene,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 332;
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                                                                                                                                 GAAAATGAAGAGATTTTAGGAGTTTTTTTTGAAGAAGCTCAAAATCTTGTAGATATCCTT
                                                                             GAAGAGAATATT 184
A24079 1140 bp mRNA
T.hyodysenteriae 43 kD sheath
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (12-JUN-1995) Gabriel A. Trueba, Microbiology, University of Minnesota, 420 Delaware Street S.E., Minnesota, MN 55455, On Dec 12, 1995 this sequence version replaced gi:984522.

Location/Qualifiers
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Trueba, G.A., Old, I.G.,
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cheA cheW operon in Borrelia burgdorferi, the agent c
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a 278 c
                                                                                                                                                                                                                                                                                                                                                                                            DLSGRGVGLDVVKKSIEKLNGTILVESEIGLGTIFKIKLPLTLVIIQGLLVKSGSETY
VIPLNNVLETHRITEHDIKLLENYHEVYNLRDEVISVLRLDKLFNITRDDSLIEKFLI
VVNTSNMKIAIVVDSILGEEDFYVKPIKDKFSSSAGIVGATTLGNGKVVLIIDVFKLF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /function="involved in chemotaxis"
/product="histidine kinase"
/protein_ide="AnB96835.1"
/db_xref="GI:1113815"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Borrelia burgdorferi"
/strain="CT-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="cheA"
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Pred. No. 1.9e-13;
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55455, USA
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TITLE
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Matches 369; Conserv
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              ggtgatactattttgggggtaagagttttgtttccaagctattctc---aatcatctgct
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                                                                                                                                                                                                                                                                                                                      aattatgttgattatgtatattcgggcgcttctggtattgttaagccggaagatatggtt
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GAAGGTAAAGGTGTTATACATAACGTTGGCGAAATCAAAATCTATTAGTTCTTGGGTTTAT
                                                                                                                   GCAGGTAAAGTTCTTGGTGTAAGAGTACATTTCCCATTAGCAGCTTGGAACAGTTATGCT
                                                                                                                                                                           AATCGCAGAAATTCTTATGTTACTAACGTAGACAGTAAAGGTAACAACGGTGCTTGGGAA
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                                                                                                                                                                                                                                        Treponema hyodysenteriae vaccine
Patent: EP 0534526-A 1 31-MAR-1993;
DUPHAR INTERNATIONAL RESEARCH B.V
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Brachyspira hyodysenteriae
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VNLQNEEGELKSYPMGTYYFNGWRQVRWENREYLDNVBDRVLYREPLYPRMIFSYKLD
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27. .
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ARIREQAELRDLEQRRIGDGTAADQGAAANTGAADTGAAQEQAQ"
1 152 c 233 g 365 t
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86. .91
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/db_xref="taxon:159"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gcttcaagtaaaatgagatttaaggcttttaagagtttcaaagtcacacagttcaaaagtt 1234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAATACTTACCTAATGTTCGCGACAGAGTATTAGTAAGAGAACCTCT---TTATCCTAGA 732
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          agtttagggtatgagatagatcttgaggttttatttgaagatatgaatggcatggaatat 1054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGAGATTTCATCACCTTACGTTAAAGATGTAACACTTGAGTÄTGACGTAGTAGTTGTTGAT 852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGATCCCTTCTGTTAAATTAGATTCTTTAGGTTTCTATAGAACTAAAGATACTAAAGGC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cloning and DNA sequence analysis of a Serpulina (Tropy hyodysenteriae gene encoding a periplasmic flagellar Infect. Immun. 60 (7), 2920-2925 (1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (04-NOV-1991) J.G. Kusters, Inst. and Immun., P.O.Box 80.165, 3508 TD Utrecht, 2 (bases 1 to 1260)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein.
Brachyspira
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flaAl gene; FlaAI
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X63006 S38343
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Brachyspira hyodysenteriae
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5.1 GI:4
               /protein_id="CAA44735.1"
/db_xref="G1:433524"
/db_xref="G1:433524"
/db_xref="SUSISS-PROY:B3520"
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NEVPPYAENLYNDNWYWLNESARLTENRRNSYTHVDSKGNNGAWEAGKYLGVRVHF
PLAANNSYALVKPYYELEMYGADGTKYTEGKVINNVDETKSISSWVSGRNYLISYF
VNLQNEFGELKSYBMGTVYFNGWRQVUWENNEYLPNVRDRYLVREPLYPRMIBSYKLD
SLGFYRTKDTKGGDFITYVKDVTLEYDVVVVDFEEDLDDEATWQLLKTENDRKQAIES
                                                                                                                                                                                                                                                                              /gene="flaA1"
103. .159
                                                                                                                                                                                                                                                                                                                                                                     /organism="Brachyspira
/strain="C5"
/db_xref="taxon:159"
27...32
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/transl_table=11
/product="flagellin_FlaA1"
AR IREQAELRDLEQRRIGDGTAADQGAAANTGAADTGAAQEQAQ
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTTGAAGAAGATATCGACGATGAAGCT
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                                                                                                                                                                                                                                                        aactatattcctaatatatcatccagaattattaaagacgatgttccaaattatcctctt 1174
                                                                                                                                                                                                                                                                                                         gcttattctatgggtactttaaagtttaaagggtgggctgatttaatttggtcaaatcct 1114
                                                                                                                                                                                                                                                                                                                                                             agtttagggtatgagatagatcttgaggttttatttgaggatatgaatggcatggaatat
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                                                                                                                                     GGAGATTTCATCACTTACGTTAAAGATGTAACACTTGAGTATGACGTAGTAGTTGTTGAT
                                                                                                                                                                                                             gcttcaagtaaaatgagatttaaggcttttagagtttcaaagtcacacagttcaaaagtt 1234
                                                                                                                                                                                                                                        GAATACTTACCTAATGTTCGCGACAGAGTATTAGTAAGAGAACCTCT---TTATCCTAGA
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/gene="flaAl"
/product="flagellin E
1004. .1030
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1157. .1175
            falciparum MAL1P3, complete
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KEYWORDS
SOURCE
ORGANISM
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            On Dec 16, 1999 this sequence version replaced g1:5763807. On Dec 16, 1999 this sequence or the Malaria Project, For more information about this sequence or the Malaria Project, see http://www.sanger.ac.uk/Projects/P_falciparum. IMPORTANT: Th sequence is unfinished and does not necessarily represent the correct sequence. Work on the sequence is in progress and the release of this data is based on the understanding that the sequence may change as work continues. The sequence may be contaminated with foreign sequence from E.coli, yeast, vector,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission
Submitted (24-SEP-1998)
The Sanger Centre, Wello
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Plasmodium falciparum Eukaryota; Alveolata; 1 (bases 1 to 67970)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and Barrell,B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bowman,S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          malaria parasite P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AL031746.9 GI:6594243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                aa, similarity: UPF0006 family eg to YBL055C/YBL0512/YBL0511, YBF5 YEAST (418 aa), fa scores: opt: 316, E(): 1.1e-12, (33.2% identity overlap)"
                                                                                     /product="hypothetical protein, MALIP3.02"
/protein_id="CAB63557.1"
/db_xref="G1:6594245"
/ta_nslation="kKLLNNRRVVLQPITILFFFLNSVVLGNNNRNNINFHETENAAK
/translation="KKLLNNRRVVLQPITILFFFLNSVVLGNNRNNINFHETENAAK
AMRKLLSGEINSIKLDNGDELKIKLNDEKHKDSTKWDKSYSFISNLEEEKYSQTDLFR
KKQEINEANTKIIEDRQEFYILNNDEIENIATRFVLENNFDELYIQSFKQSLIDIIQS
                                                                                                                                                                                                                                                 /note="MAL1P3.02, hypothetical protein, contains possible signal sequence"
                                                                                                                                                                                                                                                                                                                                                                   /note="potential 5005. .5496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(2599. .2610)
/note="potential splice
complement(2742. .2747)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement(join(1748.
/gene="MAL1P3.01"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(join(1748. .2598,2748. .2848,2990. /gene="MAL1P3.01"
                                                                                                                                                                                                                                                                                                                        /gene="MAL1P3.02"
5005. .5496
                                                                                                                                                                                                                                                                                                                                                                                                                  complement (2984.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="potential splice
complement(2849...2861)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CSLKSLENINAVKKIPLNLLLLETDAPWCGVKKTHASYEYIKDTYEKRAYTNLKKIKN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NEKDKEYLENLKNKIIKYPNRIVCIGEIGLDFDRLYFCSKYIQIKYFIFQLKLVQMFN
LPMFLHMRNCSETFFKIVDIYKFLFEKNGGVIHSFTDKEDIVHIIVQNYKNLYIGVNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LQIKKRSNLKKNHNIRKMEDNESSFIDIGSNLTDKMFDGVYNSKKHENDLQNVLNRAK
NNNVDKIIITCTCLAEIDKSLKICETYDPEGKFLYLSAGVHPTNCYEFIDKNKHEEKE
IIAKKEYEEFIKYFKNEQVENSKMENGNKKICDGEKDMNNLNEILLEKNLDTIPGFKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="conserved hypothetical protein, UPF0006 family"
/protein_id="cAB63556.1"
/db_xref="GI:6594244"
                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="potential
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IIKCDDNTIFKERNEPYNIA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /chromosome="1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /strain="3D7"
                                                                                                                                                                                                                              /codon_start=]
                                                                                                                                                                                                                                                                                                /gene="MAL1P3.02"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        translation="MKLVFHYIKYINVLFYISIIFLKSNSLKIYNDLRYISTVNKYKV/
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:5833"
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.20352
                                               .10389
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splice
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                                                                                                                                                                                 l protein, MAL1P3.02"
                     region of very high [A+T] content"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Haemosporida; Plasmodium
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                                                                                                                                                                                                                                                                             len:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="rRNA"
/note="region containing small subunit,
subunit rRNA genes and spacer regions"
23896. 31533
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14884. .20352
/gene="MAL1P3.03"
/note="MAL1P3.03,
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MIRSMILFGNENPLIKKYIILQSELLMDLSTIEHGDKKYINDHNLSKGQKVRICLA
RALYEHYIHMKLCTDY EKKLIQPNEILMKDLINKKHISSYNNKKSKLVYNIPFHEN
YLQKCLMDDNNFYLYLLDDIFTSLDPSISKKIFSNLFCKEDNISFKDNCSFIISMNKS
TLDNFLIEDILDNVQYEVNIFFELQDKTLKYRGNISFKDKENTHITKESHWGYSNLNT
IDYTRIKIFDEDVELNHYKHSNKMIYIKENYKKSKEVYNIFFELDSINKEYIKKKKKKNL
YKEHMNKNNKDNNNNNNSNKDDHININMNDHRNYNDINLGPNSTDDSPTVSSLGNE
YKINTOTYSNNSDKEEIVKDYKOTHEENKSSSMPTVSSSSGNE
KGSISLETYLMYFQOYGFVLLTSVLIFMLSIFTDEIKFVFLTMMSIISKNIKEHS
FKGSISLETLLMYFQOYGFVLLTSVLIFMLSIFTDEIKFVFLTMMSIISKNIKEHS
TILDTYSNNSDKEEIVKDYKOTHEENKSSSMPTVSSSSGNE
KGSISLETLLMYFQOYGFVLLTSVLIFMLSIFTDEIKFVFLTMMSIISKNIKEHS
FKGENTALTHYFOTHENSTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="MALIP3.04, conserved hypothetical membrane protein, len: 203 aa, similarity: P. faiciparum chromosome 2, PFB0110W, 096126 predicted integral membrane protein (255 aa), fasta scores: opt: 335, E(): 4.9e-15, (36.1% identity in 191 aa overlap)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement(join(31966. .32476,32675. .32775))
/gene="MALIP3.04"
complement(join(31966. .32476,32675. .32775))
/gene="MALIP3.04"
                                                                                                                                                                                                                                complement(32477. .32486)
/note="potential splice acceptor sequence"
complement(32669. .32674)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/product="conserved hypothetical membrane protein,
MALLP3.04"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GINLGKNDLYKYMHKQDMKSNYKKIIQTSKVINQSNDNTILLTNDCIRYLSLVRLYLN
RHKYKIILIDEIPIFNLNNSVHDELNSFLIGKAKSFNYIIRNHFPNNTVLIISHHANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YNNNLGNIINRFIIDISAFDYGFLKRIYKAFFIFFRCILSSLLIIYMIRDCIFIFPFV
IILIYFFVFKRFSRGCKEAQRLYLSCHTPLCNIYSNALSGKNIINIYKKNTYHLDVYE
HYINNFRISYFFKWLINIWASLYIKIFILLLTTYIIMHPHLYASGIIKLYKEKNYVRI
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LYYNDIKNYFMYRTRY NEDYNIVVDKTFLQNENITSHDDGTSHNLKHLKNVIKNKLTN
MFKYFFFYHKNNYHKNI INKQILSGLLKNVDDNTNKK ICFQEHKSNSTYNYNSSHIHE
                                                                            /gene="MAL1P3.05"
join(36657. .3674)
                                                                                                                                                                                                                                                                                                                                                                                     /translation="mkksyteinvtilleltllleltyynydtesktkennnikidin
REKRIIAEASEEQKYPWEEDECLILNEEELIRPEHNDSPYLPEHYENIDKINELSINS
TKIWKETIKKMRQNYEKETDNMNHNWRDEWMHYKWANIYLYKVHKLINITLKDLTNPI
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NVITTQTYKEKNENISDKISAIVEYKNVSLSSIINSSQDDESKKKYGIKFENVYVSYK
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KEFKLIKMFNWESFAFKYINIFRMKEMKYCKIRLYLSNIGVFISSISSDIVEVVIFFI
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DYIINFIKSTKKMEKDSLNENRSLPNVNIYNIMFSDVPSVTFFVTSCINLFNVFVKIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GDIQELPNICRNFDVPYYASKLEENLRDIEVEDSEFYSEKNSSNEHVLHHCNSNDASE
                                    /gene="MAL1P3.05"
                                                                                                                                                    /note="potential splice donor sequence, aaa/gtatat"
join(36657...36743,36864...37343)
                                                                                                                                                                                                                                                                                                                                                     HDKEETITTWIKWIQEDIEYFLFNLQVEWLRILTLELFYKNKE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /protein_id="CAB63559.1"
/db_xref="GI:6594247"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="rRNA"
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KITVEGRDIRTYNRKGEDSIIGILAQSSFVFYNWNIRTFIDPYNNFTDDEIVHALKLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KKEEYENIHNSSNSTMSNEFKEKKKNNEYIIKLENCSFGLSYDNKCDNDHILKNINFN
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/db_xref="GI:6594246"
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/protein_id="CAB63558.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           translation="MTTYKENVGISNKGNKKKKSCQNISFLNFLSFDWIRPLINDLIK/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
                                                                            .36743,36864. .37343)
hypothetical protein,
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    len:
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Matches
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QGGCGIISSVHETSNDTKDNDKENISEDKKEDHQQEEMLKTLDKKERKQKEKEMKEOE
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36854. .36863
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/note="potential splice of
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complement(join(38049. .39995,40210. .4028
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ITGRLLNETELEKNKDDNSKSETLLKEEKDEKDDVPTTSNDNLKNAHNNNEISSSTDP
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/db_xref="GI:6594248"
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/gene="MAL1P3.07"
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University, 4444 Forest
7 (bases 1 to 173957)
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University, 4444 Forest
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Direct Submission
Submitted (05-MAY-1999) Genome Sequencing Center, Washington University School of Medicine, 4444 Forest Park Parkway, St.
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Sulston, J. E. and Waterston, R.
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The sequence of Homo sapiens BAC clone RP11-155J5
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Web site: http://genome.wustl.edu/gscContact: sapiens@watson.wustl.edu
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Center project name: H_NH0155J05
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NOTICE: This sequence may not represent the entire insert of this clone. It may be shorter because we only sequence overlapping clone sections once, or longer because we provide a small overlap between neighboring data submissions.

all regions were double stranded, sequenced with an alternate chemistry, or covered by high quality data (i.e., phred quality solution); an attempt was made to resolve all sequencing problems, such as compressions and repeats; all regions were covered by sequence from more than one subclone; and the assembly was confirmed by This sequence was finished as follows unless otherwise noted: restriction digest.

MAPPING INFORMATION:
The position of this clone was established as part of a collaboration between the Human Chromosome Y Mapping Project (Tomoko Kawaguchi, Helen Skalatsky, Laura G. Brown, Steve Roz and David C. Page at the Whitehead Institute for Biomedical Research, Cambridge MA) and the Washington University Genome Scannencing Center, St. Louis MO. Rozen,

SOURCE INFORMATION:

donor, as described by Osoegawa, K., Woon, P.Y., Zhao, B., Frengen, E., Tateno, M., Catanese, J.J. and de Jong, P.J. (1998) An improved approach for construction of bacterial artificial chromosome libraries. Genomics 51:1-8. The clone may be obtained either from Research Genetics, Inc. (http://www.resgen.com) or Pieter de Jong and coworkers at the Roswell Park Cancer Institute The clone sequenced to the right is this clone is at base position 1 of base position 173957 of RP11-155J5. NEIGHBORING SEQUENCE INFORMATION: The RPCI-11 (http://bacpac.med.buffalo.edu) human BAC library was made from the blood of one male RP11-160K17. Actual start RP11-155J5; actual end is Actual start of ctual end is at

repeat_region repeat_region repeat_region source repeat_region /rpt_family="AT_rich" 23961. .23996 /rpt_ /rpt_ 12046 /rpt_ 11934 /rpt_family="L1" 7758. .10708 /rpt_family="(TA)n" 2160. .7755 /rpt_family="Alu" 1438. .1582 /rpt_family="AT_rich" 1281. .1435 /clone_lib="RPCI-11" 976. .1007 /db_xref="taxon:9606" /chromosome="Y" Location/Qualifiers /clone="RP11-155J5" /map="Y" rpt_family="(TA)n" organism="Homo sapiens" .17395 _fami fami tamily-"L1" family="(TATATG)n" family-"L2" family-"L1" ly-"AT_rich" ly-"(TA)n" 2039

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3. .50487
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              On Aug 12, 1999 this sequence version replaced gi:5531346. For more information about this sequence or the Malaria Project, see http://www.sanger.ac.uk/Projects/P_falciparum. IMPORTANT: Th sequence is unfinished and does not necessarily represent the correct sequence. Work on the sequence is in progress and the release of this data is based on the understanding that the
                                                                                                                                                                                                                                                                                                PFMAL4P1 392633 bp DNA H:
Plasmodium falciparum chromosome 4 strain
                                                                                                              Direct Submission
Submitted (17-DEC-1998) P.falciparum Genome Sequencing Consortium,
The Sanger Centre, Wellcome Trust Genome Campus, Hinxton, Cambridge
                                                                                                                                                                                               malaria parasite P. falciparum.
Plasmodium falciparum
Eukaryota; Alveolata; Apicomplexa;
 sequence may change as work continues.
                                                                                    CB10 1SA, UK
On Aug 12, 19
                                                                                                                                                         and Barrell, B.
                                                                                                                                                                      Bowman, S., Churcher, C., Harris, B.,
                                                                                                                                                                                                                                           HTG; HTGS_PHASE1.
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Similarity 49.9%;
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57276. .57309
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                                                                                                          U15677
U15677.1
Mitochondrion Myrmecia pilosula
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda;
Pterygota; Neoptera; Endopterygota; Hymenoptera; Apo
Aculeata; Formicidae; Myrmeciinae; Myrmecia.
1 (bases 1 to 1128)
Crozier, R. H., Dobric, N., Imai, H. T., Graur, D., Cornue
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phage etc.
* NOTE: This is a 'working draft' sequence.
* This record will be updated with the finished sequence.
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 Cornuet, J.M.
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tctttttgctatgtctttaataaaaacaatgcgctttaactatcctggtaagataaaaaa
                                                                                                                                                                                                            Direct Submission
Submitted (08-OCT-1994) Ross H. Crozier, Sc
Trobe University, Bundoora, Victoria 3083,
Location/Qualifiers
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ILDFWIITNYIMHLYFLHLTGSSNPLGINSNLKIFTONSILRSIPNKLGGFIISLLFFTL
LILMFTPYLESDENDRELPANDLVTPHHIQPEWYFLFNYSILRSIPNKLGGVIALFSSIG
ILYFLPMLTSKMNSSSFYPLSQFLIWLFFMTFWILTWLGSQVIEHPYIITAQFFSMLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="cytochrome b"
/protein_id="AAA86971.1"
/db_xref="GI:576757"
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/organelle-"mitochondrion"
/strain-"H187-13"
/db_xref-"taxon:13618"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (27-AUG-2000) Human Genome Sequencing Center, Department of Molecular and Human Genetics, Baylor College of Medicine, One Baylor Plaza, Houston, TX 77030, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                          Baylor Plaza, Houston, TX 77030, USA
On Jul 31, 2001 this sequence version replaced g1:14971136
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1 (bases 1 to 242513)
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                                                               Sequencing vector: Plass Sequencing vector: M13;
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Center clone name: RP11-386120
                                                                                                                                                                                                                                                                             Web site: http://www.hgsc.bcm.tmc.edu/Contact: hgsc-help@bcm.tmc.edu
                                   Chemistry:
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Dye-primer Bodipy: 4% of reads
Dye-terminator Big Dye: 96% of reads
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* NOTE: Estimated insert size may differ from sequence length
    (see http://www.hgsc.bcm.tmc.edu/docs/Genbank_draft_data.html)
    NOTE: This sequence may represent more than one clone.
    NOTE: This is a 'vorking draft' sequence. It currently
    consists of 28 contigs. The true order of the pieces
    is not known and their order in this sequence record is
    arbitrary. Gaps between the contigs are represented as
    runs of N, but the exact sizes of the gaps are unknown.
    This record will be updated with the finished sequence
    as soon as it is available and the accession number will
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Consensus quality: 247540 bases at least Q40
Consensus quality: 264753 bases at least Q30
Consensus quality: 273200 bases at least Q20
Estimated insert size: 327546; sum-of-contigs estimation Quality coverage: 0x in Q20 bases; agarose-fp estimation Quality coverage: 4.1x in Q20 bases; sum-of-contigs estim
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1 (bases 1 to 175229)

Heilig.R., Petit,J.L., Vico,V., Dasilva,C., Robert,C., Wincker,P., Brottler,P., Cattolico,L., Barbe,V., Pelletier,E., Artiguenave,F., Levy,M., Eckenberg,R., Bruls,T., deBerardinis,V., Cruaud,C., Gyapay,G., Saurin,W. and Weissenbach,J.

Sequencing of the human chromosome 14
                                                                                                                                                                                                                                                                     Homo sapiens chromosome 14 clone R-828K24, *** PROGRESS ***, 2 ordered pieces.
         Submitted (29-JUN-2001) Genoscope - Centre National de Sequencage : BP 191 91006 EVRY cedex - FRANCE (E-mail : segref@genoscope.cns.fr
                                                     Genoscope.
                                       Direct Submission
                                                                              Unpublished
                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                             AL159141.4 GI:14588844
HTG; HTGS_PHASE2; HTGS_ACTIVEFIN; HTGS_DRAFT
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                                                                  (bases 1 to 175229)
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: www.genoscope.cns.fr)
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49220 c 48511 g 70846 t
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/db_xref="taxon:9606"
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                                                                                                                                                                                                                                                                                                 175229 bp
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No. 0.015;
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                                                                                                                                                                                                                                                                                    SEQUENCING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1;
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           BASE COUNT
ORIGIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Overall quality chart :
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                                                   dbsrs:srs38993
                                                                 RHdb:RH45925
                                                                                                                    dbSTS:STS9346
                                                                                                                                   RHdb:RH28423
                                                                                                                                                                                    /clone_lib="RPCI-11"
                                                                                                                                                                                                  /clone="R-828K24"
                                                                                                                                                                                                               /chromosome="14"
                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                            110596. .110728
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6725
13088
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64662
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Upstream BAC (overlapping the T7 end) : R-6
Downstream BAC (overlapping the SP6 end) :
Summary Statistics
Summary Statistics
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           71802 bp contig from 1 to 71802
103327 bp contig from 71903 to 175229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  percentage of bases with a quality value >= 40 : 99 %.
* NOTE: This is a 'working draff' sequence. It currently
* consists of 2 contigs. Gaps between the contigs
* are represented as runs of N. The order of the pieces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Assembly program: Phrap; version 2.0 Quality coverage: 6.28x in Q20 bases;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The following BAC sequence is oriented from the T7 to the SP6 end. IMPORTANT: This sequence is unfinished and does not necessarly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         web site: http://www.genoscope.cns.fr/
Contact: SeqRef@genoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * is believed to be correct as given, however the sizes
* of the gaps between them are based on estimates that have
* provided by the submittor.
* This sequence will be replaced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Center: Genoscope / Centre National de
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      by the finished sequence as soon as it is available the accession number will be preserved.

1 71802: contig of 71802 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             71803 71902: gap of 100 bp 71903 175229: contig of 103327
Identified using the e-PCR software (G. Schuler)" a 41136 c 42653 g 47199 t 103 others
                                                                                                                                                                                                                                                                                                            18301. .18385
/note="matching EMBL:M79260
RHdb:RH28481
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/db_xref="taxon:9606"
                                                                                                                                      /note="matching EMBL:N52863
                                                                                                                                                                                                  Identified using the e-PCR software
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) : R-807G16 (AC-AL136332)
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RESULT 14
CNS01DW4/c
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AUTHORS
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TITLE
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             Center: Genoscope / Centre National de
Center code: GS
Web site: http://www.genoscope.cns.fr/
                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 209157)

Heilig,R., Petit,J.L., Vico,V., Dasilva,C., Robert,C., Wincker,P., Brottier,P., Cattolico,L., Barbe,V., Pelletier,E., Artiguenave,F., Levy,M., Eckenberg,R., Bruls,T., deBerardinis,V., Cruaud,C., Gyapay,G., Saurin,W. and Welssenbach,J.

Sequencing of the human chromosome 14
                                                                   0n
                                                                                              Submitted (26-JUN-2001) Genoscope - Centre National de Sequencage BP 191 91006 EVRY cedex - FRANCE (E-mail : segref@genoscope.cns.fl
                                                                                                                                                                                                                                                                                                                                                                               CNS01DW4 209157 bp
Human chromosome 14 I
                                                                                                                                                                  Unpublished
                                                                                                                                                                                                                                                                                                                         AL136332.5 GI:14572584
HTG; HTGS_ACTIVEFIN.
 Contact:
                                                                                                                          Direct Submission
                                                                                                                                       Genoscope.
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                                                                                                                                                                                                                                                                                                                                                                    from chromosome 14 of
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                                                      Web : www.genoscope.cns.fr)
Jun 27, 2001 this sequence version replaced gi:12657317
------ Genome Center
                                                                                                                                                      (bases 1 to 209157)
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: http://www.genoscope.cns.fr/
SeqRef@genoscope.cns.fr
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Pred. No. 0.016;
0; Mismatches 250; Indels 10
                                                                                                                                                                                                                                                                                                                                                               DNA PRI 26-JUN-2001
NA sequence BAC R-807G16 of library RPCI-11
Homo sapiens (Human), complete sequence.
                                        Sequencage
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Location/Qualifiers
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                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone_lib="RPCI-11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /chromosome="14"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  organism="Homo sapiens"
/db_xref="taxon:9606"
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AUTHORS
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                 Consensus quality: 143563 bases at least Q40 consensus quality: 163588 bases at least Q30 consensus quality: 171970 bases at least Q20 insert size: 157000; agarose-fp
                                                                                Sequencing vector: M13; M77815; 100% of reads Chemistry: Dye-terminator Big Dye; 100% of reads Assembly program: Phrap; version 0.960731
                                                                                                                                                 Center project name: L1886
Center clone name: 115_J_15
                                                                                                                                                                                       Contact: sequence_submissions@genome.wi.mit.edu
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GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: March 19, 2002, 23:30:59; Search time 311.54 Seconds (without alignments) 40.132 Million cell updates/sec

Title: Perfect score: Sequence: US-09-004-395-2 1719

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Scoring table:

BLOSUM62 Gapop 10.0 , Gapext 0.5

Searched: 100059 seqs, 36664827 residues

Total number of hits satisfying chosen parameters: 100059

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database : SwissProt_39:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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CONFLICT
SEQUENCE
MEDLINE-91123217; PubMed-1991729; Parales J. Jr., Greenberg E.P.; "N-terminal amino acid sequences and Spirochaeta aurantia flagellar filame J. Bacteriol. 173:1357-1359(1991).
                                                                                                                                                                       Greenberg
Submitted
                                                                                                                                                                                                                                                                             "Cloning aurantia
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Bacteria; Spirochaetales;
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                                                                                                                             SEQUENCE OF 22-49
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AE001168; AAC67025.1;
X91907; CAA63001.1; -
BB0668; -
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and sequence analysis of flaA, a go
flagellar filament surface antigen
riol. 171:1692-1697(1989).
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T OUTER LAYER PROTEIN PRECURSOR
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P18193;
01-NOV-1990 (Rel. 16
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Bacteria; Spirochaetales;
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een the Swiss Institute of Bioinformatics and the EMBL outstation -
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an email to license@isb-sib.ch).
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CRC64;
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SEQUENCE FROM N.A.

MEDLINE-0307197; PubMed=2194955;
Isaacs R.D., Radolf J.D.;
Isaacs R.D., Radolf J.D.;
Expression in Escherichia coli of the sheath protein of Treponema pallidum reaction and a T7 expression system.'
Infect. Immun. 58:2025-2034(1990).

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Treponema pallidum by expression system."; :2025-2034(1990).

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Matches 100
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ISBACS R.D., Hanke J.H., Guzman-Verduzco L.-M., Newport G.,
Agablan N., Norgard M.V., Lukehart S.A., Radolf J.D.;
"Molecular cloning and DNA sequence analysis of the 37-kilodalton
endoflagellar sheath protein gene of Treponema pallidum.";
Infect. Immun. 57:3403-3411(1989).

1- FUNCTION: COMPONEMT OF THE OUTER LAYER OF THE FLAGELLA.
-1- SUBUNIT: THE FLAGELJUM CONSISTS OF AN OUTER LAYER COMPOSED OF
REPEATING UNITS OF FLAA AROUND A CORE THAT CONTAINS SEVERAL
ANTIGENICALLY RELATED POLYPETIDES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Fraser C.M., Norris S.J., Weinstock G.M., White O., Sutton G.G., Dodson R., Gwinn M., Hickey E.K., Clayton R., Ketchum K.A., Sodergren E., Hardham J.M., McLeod M.P., Salzberg S., Peterson J., Sodergren E., Hardham J.M., McLeod M.P., Chidambaram M., Utterback T. Khalak H., Richardson D., Howell J.K., Chidambaram M., Utterback T. McDonald L., Artiach P., Bowman C., Cotton M.D., Fujii C., Garland Hatch B., Horst K., Roberts K., Sandusky M., Weidman J., Smith H.O.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; M63142; AAA27477.1; -. EMBL; AE001206; AAC65235.1; -. EMBL; M26525; AAA27476.1; -. TIGR; TP0249; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Complete genome sequence of Treponema pallidum, the spirochete.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Flagella;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-90035409;
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MEDLINE-98332770;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SWISS-PROT entry is copyright. It is produced through a collaboration een the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its by non-profit institutions as long as its content is in no way
                                SVFKVYETSGTESLRKLKAHETFKRVLKLREKISIAEGSFONFVEKIESEK
   DLW----
                                                                                                                                     RIIKDDVPNYPLASSKMREKAFRVSKSHSSKVKNEIFYVKDLRVLYDKLSVSIDSDIDSE
                                                                                                                                                                        IKTMKEIKVSVYSLGYEIDLEVLFEDMNGMEYAYSMGTLKFKGWADLIWSNPNYIPNÍSS
                                                                                                                                                                                                        RVLFPTWDSNANAMIKPAFVIPAYEVMAQVDDQGNVQAPTEEEKASGKGRFEDGYGVVKN
                                                                                                                                                                                                                                             RVLFPSY-SQSSAMIMPPFKIPFYS----GESGN------
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                                                                                                                                                                                                                                                                                                                SGASGIVKPEDMVVDLGINNWSVLLTPSARLQAYVKNSVVAPAVVKSESKRYAGDTILGV 123
                                                                                                                                                                                                                                                                                                                                                 ESVLIDFAKLNADIMADKSGGMTHNRR-----TVLDYASLAD-----TSYTD---
                                                                                                                                                                                                                                                                                                                                                                                    KSIL--FELLSTVLFAQETDGLAEGSKRAEPGELVLDFAELARDPSSTRLDLTNYVDYVY 63
                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                281:375-388(1998).
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38857 MW;
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                                                                                                                                                                                                                                                                                                                                                                                                                          66;
                                                                                                                                                                                                                                                                                                                                                                                                                         Score 361.5; DB 1;
Pred. No. 2.2e-19;
6; Mismatches 120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FLAGELLAR FILAMENT OUTER LAYER ; 2BC7C7EFA0CDB4C7 CRC64;
RKRVEVARFGQQQVLRYTEQEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   syphilis
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RESULT 4
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P3520; P80157;
01-OCT-1993 (Rel. 27, Created)
01-OCT-1993 (Rel. 27, Last sequence update)
20-AUG-2001 (Rel. 40, Last annotation update)
                                                                                                                                                                                                                                                            CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-93139764; PubMed=1487733;
KOOpman M.B.H., Baats E., van Vorstenbosch C.J.A.H.V.,
KOOpman M.B.H., Baats E., van Vorstenbosch C.J.A.H.V.,
Van der Zeijst B.A.M., Kusters J.G.;
"The periplasmic flagella of Serpulina (Treponema) hyodysenteriae
composed of two sheath proteins and three core proteins.";
J. Gen. Microbiol. 138:2659-2706(1992).
-1- FUNCTION: COMPONENT OF THE OUTER LAYER OF THE FLAGELLA.
-1- SUBUNIT: THE FLAGELLUM CONSISTS OF AN OUTER LAYER COMPOSED OF
SHEATH PROTEINS, FLAA1 (44 KDA) AND FLAA2 (35 KDA) AROUND A CO
THAT CONTAINS THREE PROTEINS FLAB1 (37 KDA), FLAB2 (34 KDA) AN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE E
                                                                                                                                                                                                                                                                                                                      SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                   modified
                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions used by non-profit institutions as long as its content is in use by non-profit institutions as long as its content.
                                                                                                                                                                                                                                                                                                                                                                    EMBL; X63006;
EMBL; A24079;
                                                                                                                                                                                                                                                                                                                                                                                                                 entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Treponema hyodysenteriae (
Bacteria; Spirochaetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FLAA1 OR FLAA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Koopman M.B.H., de Leeuw O.S., van der Zeijst B.A.M., Kusters "Cloning and DNA sequence analysis of a Serpulina (Treponema) hyodysenteriae gene encoding a periplasmic flagellar sheath
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-92307926;
                                                                                                                                                                                                                                                                                                                                                      PIR; A43824; A43824.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein.";
104
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 LAAWNSYALVKPYYELEMYGGADGTKYTEGKGVIHNVGEIKSISSWYYGRNYLISYFVNL
                                                                                                                                               LFFLLSTVLFAQETDGLAEGSKRAEPGELVLDFAELARDPSSTRLDLTNYVDYVYSGASG
                           SYSQSS-AMIMPPFKIPFYSGESGNQFL-GKGLIDNIKTMKEIKVSVYSLGYEIDLEVLF
                                                           TNEVVPVAENLYNDNWVVWLNESARLTENRRNSYVTNVDSKGNNGAWEAGKVLGVRVHFP
                                                                                       IVKPEDMVVDLGINNWSVLLTPSARLQAYVKNSVVAPAVVKSESKRYAGDTILGVRVLFP 128
                                                                                                                         LEVYLTSIFIAASAYGLTNST------LIDFA
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                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                               non-profit institutions as long and this statement is not removed.
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                                                                                                                                                                                                                                                                                                                                      Signal; Periplasmic.
                                                                                                                                                                                                                                                            320
                                                                                                                                                                                   Conservative
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CAA01715.1;
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Brachyspiraceae; Brachysp
                                                                                                                                                                                                                                                            WW;
                                                                                                                                                                                 Score 331.5;
Pred. No. 3e-1
53; Mismatches
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T -> S (IN REF. 2); 3CFC27B07F8646B4
                                                                                                                                                                                                                                                                                                         FLAGELLAR FILAMENT OUTER
                                                                                                                                                                                               331.5; DB
No. 3e-17;
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                                                                                                                                                                                                               Length
                                                                                                                                                                                   Indels
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                                                  RESULT 5
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Query Match
Best Local Similarity
                                                                                                          EMBL; X70356; CAA49821.1; -.
EMBL; D50453; BAA08990.1; -.
EMBL; D99105; CAB12150.1; -.
EMBL; Z99106; CAB12164.1; -.
SubtiList; BG10175; ycxD.
InterPro; IPR000524; HTH_GntR.
Pfam; PF00392; gntR; 1.
PRINTS; PR00035; HTHGNTR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YCXD_BA
Q08792;
01-FEB-
                                                                                                                                                                                                                                                                                                                                       of 113 genes.";
Microbiology 142:3047-3056(1996).
-!- COFACTOR: PYRIDOXAL PHOSPHATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Venema G., van Sinderen D.;
"Sequence and analysis of the genetic synthesis in Bacillus subtilis.";
                                                           Hypothetical protein; Transferase; Aminotransferase; Pyridoxal phosphate; Complete proteome.

BINDING 286 286 PYRIDOXAL PHOSPHATE (BY
                                                                                                  PRINTS; PR00035; HTHGNTR. SMART; SM00345; HTH_GNTR; 1.
                                                                                                                                                                                                                                                 use by non-profit institutions as long as its content modified and this statement is not removed. Usage by an
                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                          MEDLINE-97124189; PubMed-8969502; Yamane K., Kumano M., Kurita K.; Tamane K. Kumano M. Kurita K.; The 25 degrees 36 degrees region of the Edetermination of the sequence of a 146 kb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bacteria; Firmicutes; B
Bacillus/Staphylococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-FEB-1995
20-AUG-2001
                                                  SEQUENCE
                                                                                                                                                                                                                          or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                        entities requires a license agreement
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cosmina P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN=168 / JH642;
MEDLINE=93360813; PubMed=8355609;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacillus subtilis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HYPOTHET ICAL
                                                                                                                                                                                                                                                                                                                           -!- SIMILARITY: IN THE C-TERMINAL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   277
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -FEB-1995
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                                                  444 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (Rel.
(Rel.
(Rel.
150.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rodriguez F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8:821-831(1993)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31, Created)
31, Last sequence update)
40, Last annotation updat
KDA PROTEIN IN SRFA4-SFP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         319
                                                  50755 MW;
 21.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bacillus/Clostridium us group; Bacillus.
. 68
                                                                                                                                                                                                                                                                                                                       PHOSPHATE (POTENTIAL).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                de Ferra F.,
Score
Pred.
                                                              PYRIDOXAL PHOSPHATE (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                  1C392C3D386696E7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ation update)
SRFA4-SFP INTERGENIC REGION (ORF8).
109;
No. 0.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       locus responsible for surfactin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Grandi G.,
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                                                                                                                                                                                                                                                                                                                                                                                      Bacillus
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                                                                                                                                                                                                                                                                                                                                                                            segment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    group;
           1;
          Length 444;
                                                  CRC64;
                                                                                                                                                                                                                                                                                                                                                                          subtilis chromosome: and identification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Perego M.
                                                            SIMILARITY).
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                                                                                                                                                                                                                                                   in no way
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Y686_METJA
ID Y686_METJA
ID Y686_METJA
AC Q58099;
DT 01.NOV-1997
DT 01.NOV-1997
DT 20.AUG-2001
DE HYPOTHETICAL
GN MCHANOCOCCU
OC Archaea; Eur
OC Methanococcu
OX NCBI_TaxID=2:
RN [1]
RP SEQUENCE FRO;
RC STRAIN=JAL-1
RX MEDLINE=9633
RA Bult C.J., w
RA Karlavage A;
RA Overbeek R.,
RA Overbeek R.,
RA Overbeek R.
RA Overbeek R.
RA Overbeek R.
RA Cotton M.D.
RA Complete T.
RA Cotton M.D.
RA COTTON M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bult C.J., White O., Olsen G.J., Zhou L., Fleischmann R.D.,
Sutton G.G., Blake J.A., Fitzgerald L.M., Clayton R.A., Gocayne J.D.,
Kerlavage A.R., Dougherty B.A., Tomb J.-F., Adams M.D., Reich C.I.,
Overbeek R., Kirkness E.F., Weinstock K.G., Merrick J.M., Glodek A.,
Scott J.L.; Geoghagen N.S.M., Weidman J.F., Fuhrmann J.L., Nguyen D.,
Utterback T.R., Kelley J.M., Peterson J.D., Sadow P.W., Hanna M.C.,
Cotton M.D., Roberts K.M., Hurst M.A., Kaine B.P., Borodovsky M.K.,
Klenk H.-P., Fraser C.M., Smith H.O., Woese C.R., Venter J.C.;
"Complete genome sequence of the methanogenic archaeon, Methanococcus
      EMBL; U67515; AAB98681.1; -.
TIGR; MJ0686; -.
Hypothetical protein; Complete
SEQUENCE 580 AA; 68392 MW;
                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN=JAL-1 / DSM 2661 / ATCC 43067; MEDLINE=96337999; PubMed=8688087;
                                                                                                                                                                                                                  use by non-profit institutions as long modified and this statement is not removed.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Archaea; Euryarchaeota; Methanococcus.
                                                                                                                                                                                                                                                                                                                                                                                                               Science 273:1058-1073(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=2190;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Methanococcus jannaschii
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                                                                                                                                                                                                                                                                                                                                                                                                                                               "Complete genome jannaschii.";
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SSHVI-----YLKSFSKMMFPGLRVGAAVLPEALTDTFYA----YKKLN-DIDCSMI
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TLGIPAIGVKRTEE - - GLDIAKVERLFQTESIKFFYTMPRFHNP
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                                                                                                                                                            an email to license@isb-sib.ch).
                                                                                                                                                                                            requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (Rel. 35, Created)
(Rel. 35, Last sequence up)
(Rel. 40, Last annotation)
L PROTEIN MJ0686.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Methanococcales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         42;
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         proteome.
C23CA146575B2506
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            CRC64
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Query Match
Best Local Similarity
Matches 56; Conserv

Conservative

38;

Mismatches

66;

Indels

98;

Gaps

11;

6.3%;

Score 108; Pred. No. 1

DB

<u>ب</u>

Length 580;

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Q1-NOV-1997
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MEDLINE-96337999; pubMed-8688087;

Bult C.J., White O., Olsen G.J., Zhou L., Fleischmann R.D.,

Sutton G.G., Blake J.A., Fitzgerald L.M., Clayton R.A., Gocayne J.D.,

Kerlavage A.R., Dougherty B.A., Tomb J.-F., Adams M.D., Reich C.I.,

Overbeek R., Kirkness E.F., Weinstock K.G., Merrick J.M., Glodek A.,

Scott J.L., Geoghagen N.S.M., Weidman J.F., Fuhrmann J.L., Nguyen D.,

Utterback T.R., Kelley J.M., Peterson J.D., Sadow P.W., Hanna M.C.,

Cotton M.D., Roberts K.M., Hurst M.A., Kaine B.P., Borodovsky M.,

Klenk H.-P., Fraser C.M., Smith H.O., Woese C.R., Venter J.C.,

"Complete genome sequence of the methanogenic archaeon, Methanococcus
                                                                                                                  TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                           EMBL;
TIGR;
                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@fisb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Complete genome sequence of the methanogenic archaeon, Methanoc Jannaschil.", Science 273:1058-1073(1996).

Science 273:1058-1073(1996).

-I- FUNCTION: PRODUCES ATP FROM ADP IN THE PRESENCE OF A PROTON GRADIENT ACROSS THE MEMBRANE.

-I- SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN (POTENTIAL).
                                                                                                                                                                                                   Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               V-TYPE ATP SYNTHASE SUBUNIT ATPI OR MJ0222.
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20-AUG-2001 (Rel. 40, Last annotation update)
V-TYPE ATP SYNTHASE SUBUNIT I (EC 3.6.1.34) (V-TYPE ATPASE
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                                                                                          TRANSMEM
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                                                                                                                                                                                                W167478; AAB98208.1; -.
MJ0222; -.
Pro0.1PR002490; V_ATPase_sub_a.
PF01496; V_ATPase_sub_a; 1.
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n transport; Transmembrane; CPTENTIAL.
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Best Local
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AMIDASE ENHANCER PRECURSOR (MODIFIER PROTEIN
LYTB OR CWBA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TRANSMEM
SEQUENCE
                                                                        Kuroda A., Rashid H.M., Sekiguchi J.;

Molecular cloning and sequencing of the upstream region
Bacillus subtilis autolysin gene: a modifier protein exhi
sequence homology to the major autolysin and the spoIID p
J. Gen. Microbiol. 138:1067-1076(1992).

-1- FUNCTION: POSSTBLY INVOLVED IN CELL WALL METABOLISM D
FORMATION. ENHANCES THE AMIDASE ACTIVITY APPROXIMATEL
-1- SUBCELLULAR LOCATION: MEMBRANE-BOUND.
-1- SIMILARITY: WITH THE N-TERMINAL OF LYTC AT ITS N-TERM
B. SUBTILIS SPOIID GENE AT ITS C-TERMINAL.
                                                                                                                                                                                                                                                                        Lazarevic V., Margot P., Soldo B., Karamata D.; 
"Sequencing and analysis of the Bacillus subtilis 
regulatory unit encompassing the structural genes 
acetylmuramoyl-L-alanine amidase and its modifier. 
J. Gen. Microbiol. 138:1949-1961(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CWBA_BACSU
Q02113;
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                                                                                                                                                                                                                                                                                                                                                                                                             Bacillus/Staphylococcus
NCBI_TaxID=1423;
                                                                                                                                                                                                                                                                                                                                                                                                                                             Bacillus subtilis.
Bacteria; Firmicutes;
                                                                                                                                                                                                                             SEQUENCE FROM N.A., AND PARTIAL SEQUENCE. MEDLINE-92407479; PubMed-1356138;
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                                                                                                                                                                                                                                                                                                                                                                    STRAIN-168;
                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
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1 (Rel. 40,
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76953 MW;
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Pred. No. 2.3;
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the spoIID product.";
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entities modified

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RESULT
ITH1_PIG
ID ITH1
AC Q29G
DT 15--7
DT 20--1
DT 20--1
DT 20--1
DT CHAI
GN ITHI
OS SUS
OC MAM
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Best Local S
Matches 76
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Q29052; Q02669;
15-JUL-1998 (Rel. 3
15-JUL-1998 (Rel. 3
20-AUG-2001 (Rel. 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Membrane;
SIGNAL
CHAIN
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REPEAT
REPEAT
 Gebhard W.;
Submitted (MAR-1997) t
-!- FUNCTION: MAY ACT
                                                                                                                                                                                    INTER-ALPHA-TRYPSIN CHAIN H1).
                                                                    Suzuki H., Hamasima
Submitted (JUN-1995)
                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                       Eukaryota; Metazoa; Mammalia; Eutheria;
                                                                                                                                                              Sus scrofa (Pig).
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EMBL; D10388; BAA01224.1; -.
EMBL; Z9122; CAB15580.1; -.
PIR; C47679; C47679.
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                                   TISSUE=Liver;
                                              SEQUENCE OF 124-902
                                                                                          TISSUE=Liver;
                                                                                                                            NCBI_TaxID=9823;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ch 6.1%; l similarity 25.1%; 76; Conservative 3
                                                                                                                                                                                                                                                                                                                                                                                                      IESTKYIRPVNENIPFEDYLKGVIPNEMPASWSLEALKAQTVAARTYSITKT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and this statement is not removed. Usage by and for commercial requires a license agreement (See http://www.isb-sib.ch/announce/an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                               503
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                                                                                                                                                                                                                                                                                                                                                                                                                                                              -GKGLIDNIKT---MKEIKVSVYSLGYEIDLEVLFEDMNGMEYAYSMGTLKFKGWA
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64
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162
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                                                                                                                                                                                                                                                      STANDARD;
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25
349
161
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36, Last sequence update)
40, Last annotation update)
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                                                                   ) to
                                              FROM
                                                                                                                                       Chordata; Craniata; Vertebrata; Cetartiodactyla; Suina; Suidae;
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 to the EMBL/GenBank/DDBJ dat
T AS A CARRIER OF HYALURONAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            wall;
                                                                   Kimura M., Ozawa A., I
the EMBL/GenBank/DDBJ
                                              z
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       32;
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Pred. No. 2.8;
32; Mismatches
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3 X TANDEM REPEATS.
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No. 2.
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I databases.
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Sus.
  SERUM
 OR.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SIMILARITY: BELONGS TO THE ITH FAM
SIMILARITY: CONTAINS 1 VWFA DOMAIN.
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PTM: HEAVY CHAINS ARE INTERLINKED WITH BIKUNIN VIA A CHONDROITIN
4-SULFATE BRIDGE TO THE THEIR C-TERMINAL ASPARTATE (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUBUNIT: I-ALPHA-I PLASMA PROTEASE INHIBITORS ARE ASSEMBLED ONE OR TWO HEAVY CHAINS (HI, HZ OR H3) AND ONE LIGHT CHAIN, BIKUNIN, INTER-ALPHA-INIBITOR (I-ALPHA-I) IS COMPOSED OF HI AND BIKUNIN, INTER-ALPHA-LIKE INHIBITOR (I-ALPHA-LI) OF H2 A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIMILARITY).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SWISS-PROT entry is copyright. It
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CONFLICT
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CONFLICT CONFLICT PROPEP DOMAIN CARBOHYD CARBOHYD CARBOHYD BINDING CHAIN Glycoprotein. SIGNAL EMBL; D38754; BAA07632.1; -. EMBL; Y11546; CAA72309.1; -. Serine protease SMART; SM00327; VWA; InterPro; IPR002035; vWFA. Pfam; PF00092; vwa; 1. PROSITE; PS50234; 432 439 456 574 712 777 779 664 282 69 277 741 663 inhibitor; WA; 1. VWFA; 439 439 456 574 712 777 780 793 823 28 663 Repeat; Signal; N-LINKED (GLCNAC...
N-LINKED (GLCNAC...
N-LINKED (GLCNAC...
CHONDROITIN 4-SULFAT!
(BY SIMILARITY). , ' H G C & S R - > P VWFA POTENTIAL POTENTIAL INTER-ALPHA-TRYPSIN **'** ' D (IN REF. 2)
M (IN REF. 2)
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U (IN REF. 2) ۵ **۷** < ଓ ଓ ⊅ Z U 4-SULFATE, Multigene INHIBITOR CROSS-LINK (POTENTIAL). (POTENTIAL) family;

SITE

HEAVY

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                                                                                                                                                                     Query Match
Best Local Similarity 19.7
Matches 70; Conservative
37.4
                          127
                                                       329
                                                                                                              281
                                                                                  72
                                                                                                                                          12
NKAQGSLPEFSNRASIL-----IMLTDGEP-----TEGVTDRSQILKNVRDAIRGRFPLY
                                                                                                                                          LLSTVLFAQETDGLAEGSKRAEPGELVLDFAELARDPSSTRLDLTNYVDYVYSGASGIVK 71
                          -----FPSYSQSSAMIMPPFKIPFYSGESGNQFLGKGLIDNIKTMKEIKVSV-----Y 174
                                                                                  PEDMVVDLGINNW--SVLLTPSARLQA---YVKNSVVAPAVVKSESKRYAGDTILGVRVL 126
                                                                                                              LNKNVVFVIDISSSMEGQKVKQTKEALLKIL-----SDLKPGDYFDLVLFGSA----
                                                       VQSWRGSLVQASTANLDAARSYVRQFSLA
                                                                                                                                                                                      6.18;
19.78;
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Pred. No. 4.
                                                                                                                                                                     Mismatches
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SEQUENCE

AA;

100395

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BD950C230FF14185 CRC64;

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RESULT 10

XYLB_B
AC P39211
DT 01-FEB
DT 01-FEB
DT 01-NOV
DT 20-AUG
GN XYLB.
OS Bacill
OG Bacill
OG Bacill
OR BACILT
RN [1]
RP SEQUEN
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Matches 68
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EMBL; X02795; CAA26563.1; -.
EMBL; Z99113; CAB13645.1; -.
SubtiList; BG10807; xylb.
InterPrc; IPR000577; FGGY_kin.
Pfam; PF00370; FGGY; 1.
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"Sequencing of a 26
downstream of spoVJ.
                                                                                                                                                                                                                                        PROSITE; PS00445; FGGY_KINASES_2; 1.
PROSITE; PS00933; FGGY_KINASES_1; 1.
Transferase; Kinase; Xylose metabolism; Complete proteome.
SEQUENCE 499 AA; 55417 MW; 0772B7F6701E5B6E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Nucleic Acids Res. 13:5717-5722(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Wilhelm M., Hollenberg C.P.;
"Nucleotide sequence of the Bacillus su
extensive homology between the Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bacillus subtilis.
Bacteria; Firmicutes; Ba
Bacillus/Staphylococcus
NCBI_TaxID=1423;
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01-NOV-1997 (Rel. 35, Last sequence update)
20-AUG-2001 (Rel. 40, Last annotation update)
XYLULOSE KINASE (EC 2.7.1.17) (XYLULOKINASE).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (FEB-1997) to the EMBL/GenBank/DDBJ
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P39211;
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SIMILARITY:
                                            KRAEPGELVLDFAELARDPSSTRLDLTNYVDYVYSGASG-----IVKPE---DMVVDLGI 81
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KEHEP-ELFKKTAVFLLPKDYVRFRMTGVIHTEYSDAAGTLLLHITRKEWSNDICNQIGI
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Pred. No. 2.2;
57; Mismatches
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                                           Query Match
Best Local
                             Matches
                                                                                               PRINTS: PRO0301; HEATSHOCK70.
PROSITE; PS00297; HSP70_1; 1.
PROSITE; PS00329; HSP70_2; 1.
PROSITE; PS01036; HSP70_3; 1.
ATP-binding; Heat shock; Multigene family.
SEQUENCE 650 AA; 71287 MW; 6C12ED08A7C8D239 CRC64;
                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE-91370894; PubMed-1893113;
Lin T.Y., Duck N.B., Winter J., Folk W.R.;
"Sequences of two hsc 70 cDNAs from Lycopersicon esculentum.";
Plant Mol. Biol. 16:475-478(1991).
-!- SIMILARITY: BELONGS TO THE HEAT SHOCK PROTEIN 70 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Asteridae; euasterids I; Solanales; Solanaceae; Solanum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-MAR-1992 (Rel.
01-MAR-1992 (Rel.
01-OCT-1996 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A. STRAIN=CV. VF36; T
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                                                                                                                                                                                                                               PIR; S14949; S14949.
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ELARDPSSTRLDLTNYVDYVYSGASGIVKPEDMVVDLGINNWSVLLTPSARLQAYVKNSV 102
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                            Similarity 18.
58; Conservative
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18.8%;
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                             57;
                      Score 103; µb
Pred. No. 3.8;
57; Mismatches
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QVALNPINTVFDAKRLIGRRFSDAS---VQEDMKL----

WPFKVIPGPGDK-----

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RESULT 12
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ID ITH1_MESAU
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Nakatani T., Suzuki Y., Yamamoto T., Sinohara H.;
Nakatani T., Suzuki Y., Yamamoto T., Sinohara H.;
Molecular cloning and sequencing of cDNAs encoding three
precursors of the inter-alpha-trypsin inhibitor in Syrian
implications for the evolution of the inter-alpha-trypsin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTHI_MESAU STANDARD; PRT; 914 AA. p97278; 15-JUL-1998 (Rel. 36, Created) 15-JUL-1998 (Rel. 36, Last sequence update) 20-AUG-2001 (Rel. 40, Last annotation update) 1NTER-ALPHA-TRYPSIN INHIBITOR HEAVY CHAIN HI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 J. BIOCHEM. 122:71-82(1997).

J. BIOCHEM. 122:71-82(1997).

J. BIOCHEM. 122:71-82(1997).

FUNCTION: MAY ACT AS A CARRIER OF HYALURONAN IN SERUM OR AS BINDING PROTEIN BETWEEN HYALURONAN AND OTHER MATRIX PROTEIN, INCLUDING THOSE ON CELL SURFACES IN TISSUES TO REGULATE THE LOCALIZATION, SYNTHESIS AND DEGRADATION OF HYALURONAN WHICH ESSENTIAL TO CELLS UNDERGOING BIOLOGICAL PROCESSES (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN H1) (HC1).
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                                                                                                                                                             4-SULFATE BRIDGE TO THE SIMILARITY).
SIMILARITY: BELONGS TO SIMILARITY: CONTAINS 1
                            s SWISS-PROT entry is copyright. It is produced through a collat ween the Swiss Institute of Bioinformatics and the EMBL outst European Bioinformatics Institute. There are no restrictions by non-profit institutions as long as its content is in
                                                                                                                                                                                                                                                                             SIMILARITY).
PTM: HEAVY CHAINS
                                                                                                                                                                                                                                                                                                                                SIMILARITY).

SUBUNIT: I -ALPHA-I PLASMA PROTEASE INHIBITORS ARE ASSEMBLED FI SUBUNIT: I -ALPHA-I PLASMA PROTEASE INHIBITORS ARE ASSEMBLED FI ONE OR TWO HEAVY CHAINS (HI, H2 OR H3) AND ONE LIGHT CHAIN, BIKUNIN. INTER-ALPHA-INHIBITOR (I-ALPHA-I) IS COMPOSED OF H1, AND BIKUNIN, INTER-ALPHA-LIKE INHIBITOR (I-ALPHA-LI) OF H2 ANI BIKUNIN, AND PRE-ALPHA-INHIBITOR (P-ALPHA-I) OF H3 AND BIKUNIN
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        statement
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Rodentia;
                                                                                                                                                                                                                                                   3 ARE INTERLINKED WITH BIKUNIN VIA TO THE THEIR C-TERMINAL ASPARTATE
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Best Local S
Matches 66
                                                                                                                                    Q45882;
20-AUG-2001 (Rel. 40, Created)
20-AUG-2001 (Rel. 40, Last sequence update)
20-AUG-2001 (Rel. 40, Last annotation update)
20-AUG-2001 (Rel. 40, Last annotation update)
PESTICIDIAL CRYSTAL-LIKE PROTEIN CRY16AA (INSECTICIDAL CRYXVIA(A)) (CBM71 MOSQUITOCIDAL TOXIN).
CRY16AA OR CRYXVIA(A) OR CBM71.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
CARBOHYD
CARBOHYD
BINDING
                                                                                                  Clostridium bifermentans.
Bacteria; Firmicutes; Bacillus/Clostridium
         SEQUENCE FROM N.A., AND SEQUENCE OF 1 STRAIN=CH18 / SUBSP. MALAYSIA; MEDLINE=96236023; PubMed=8655486; Barloy F., Delecluse A., Nicolas L., "Cloning and expression of the first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR002035; v
Pfam; PF00092; vwa; 1.
SMART; SM00327; VWA; 1
PROSITE; PS50234; VWFA
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SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                  CGAA_CLOBI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
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                                                                                      NCBI_TaxID=1490;
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N-LINKED (GLCNAC. ..)
N-LINKED (GLCNAC. ..)
CHONDROITIN 4-SULFATE,
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J. Bacte
STRAIN-JAL-1 / DSM 2661 / ATCC 43067;
MEDLINE-96337999; PubMed-8688087;
Bult C.J., white O., Olsen G.J., Zhou L., Fleischmann R.D.
Sutton G.G., Blake J.A., Fitzgerald L.M., Clayton R.A., Go
Kerlavage A.R., Dougherty B.A., Tomb J.-F., Adams M.D., Re
Overbeek R., Kirkness E.F., Weinstock K.G., Merrick J.M.,
Scott J.L., Geoghagen N.S.M., Weidman J.F., Fuhrmann J.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CONFLICT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
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Bacteriol. 178:3099-3105(1996).
FUNCTION: TOXIN ACTIVE ON MOSQUITO LARVAE OF THE SPECIES AEDES
AEGYPTI, CULEX PIPIENS, AND ANOPHELES STEPHENSI.
SUBCELLULAR LOCATION: SECRETED.
DEVELOPMENTAL STAGE: PRODUCED DURING SPORULATION. THE EXPRESSION
DECREASES CONSIDERABLY WITH CELL LYSIS.
SUMILARITY: BELONGS TO THE DELTA ENDOTOXIN FAMILY.
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(Rel. 40,
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18.8%;
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9; Mismatches
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SEQUENCE
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01-FEB-1991 (Rel. 17, Last sequence up
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HEAT SHOCK COCNATE HSP70 PROTEIN.
Trypanosoma brucei brucei.
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between the Swiss Institute of Bioinformatics and the EMBL outst
the European Bioinformatics Institute. There are no restrictions
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Klenk H.-P., Fraser C.M.,
                                                               Eukaryota; Euglenozoa;
NCBI_TaxID=5702;
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bberts K.M., Hurst M.A., Kaine B.P., Borodo
raser C.M., Smith H.O., Woese C.R., Venter
we sequence of the methanogenic archaeon, M
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72282 MW;
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; Pred. No. 4.6;
74; Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR001023; HSP70.

Pfam, PF00012; HSP70; 1.

PROSITE; PS00297; HSP70_1; 1.

PROSITE; PS00329; HSP70_2; 1.

PROSITE; PS00329; HSP70_3; 1.

ATP-binding; Heat shock; Multigene family.

SEQUENCE 676 AA; 73694 MW; AD67B783124B785E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
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-!- SIMILARITY: BELONGS TO THE HEAT SHOCK PROTEIN 70 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; M32139; AAA30208.1; -. PIR; A45515; A45515. HSSP; P19120; INGJ.
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44; Mismatches 112; Indels 85; Gaps
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GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.

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Post-processing: Minimum Match 0%
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Listing first 45 summaries
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ALIGNMENTS

JOURNAL MEDLINE REFERENCE	REFERENCE AUTHORS TITLE	KEYWORDS SOURCE ORGANISM	ACCESSION VERSION	RESULT 1 BBU62900 LOCUS DEFINITION
J. Bacteriol. 179 (2), 552-556 (1997) 97144545 2 (bases 1 to 1655)	purguoiter: 9100P. 1 (bases 1 to 1655) Ge,Y. and Charon,N.W. An unexpected flaA homolog is present and expressed in Borrelia	Lyme disease spirochete. Borrelia burgdorferi Bacteria; Spirochaetales; Spirochaetaceae; Borrelia; Borrelia	gene, complete cds, and chemotaxis histidine kinase (cheA) gene, partial cds. U62900 U62900.1 GI:1575445	BBU62900 1655 bp DNA BCT 15-JAN-1997 Borrelia burgdorferi flagellar filament outsheath protein (flaA)

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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DEFINITION
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TITLE
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Borrella burgdorferi (section
AE001168 AE000783
AE001168.1 GI:2688598
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                             Borrelia burgdorferi
Bacteria; Spirochaetales;
                                                              Lyme disease spirochete.
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/function="putative flagellar filament outsheath protein"
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Fraser,C.M., Casjens,S., Huang,W.M., Sutton,G.G., Clayton,R.A., Lathigra,R., White,O., Ketchum,K.A., Dodson,R., Hickey,E.K., Gwinn,M., Dougherty,B., Tomb,J.-F., Fleischmann,R.D., Richardson,D., Peterson,J., Kerlavage,A.R., Quackenbush,J., Salzberg,S., Hanson,M., van-Vugt,R., Palmer,N., Adams,M.D., Gocayne,J.D., Weidman,J., Utterback,T., Watthey,L., McDonald,L., Artiach,P., Bowman,C., Garland,S., Fujii,C., Cotton,M.D., Horst,K., Artiach,R., Hatch,B., Smith,H.O. and Venter,J.C.
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Lathigra,R., White,O., Ketchum,K.A., Dodson,R., Hickey,E.K.,
Gwinn,M., Dougherty,B., Tomb,J.F., Fleischmann,R.D., Richardson,D.,
Peterson,J., Kerlavage,A.R., Quackenbush,J., Salzberg,S.,
Hanson,M., van Vugt,R., Palmer,N., Adams,M.D., Gocayne,J.,
Venter,J.C. et,al.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nature 390 (6660), 580-586 (1997)
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                                                                                                                                                                                       EMIALRIDGKVYLNDISDLKSKLKQFLVIDDQTFIKRFDGNSIKNNFCLSESDLEEIR
EGLGIGQKVLRISVVFNSNSNSEVENSGLKIFNILKNLGSVLHTIFKYEGIIEDKFLK
RVDYYLIYSDIEGVKKSLDSLNLIESYLVDEBYNKEELKKLADEEIRDVDLDSNFVLN
DNFDDTEDEISDLLLEVENOKLFKVRLDFVKNNPMATISGLOMLQALKSLGKIFKSIP
DSSELLADKFFDFVIYYLISNTSEESIAKKINLPDVVSHFEIKNVNLESLKSVRLKED
DEAPFKENKNIKKNSPISVNLIRIDSKKIDYILNUSBAVISKSYRQINSEMITLFY
NFNYFYDYQESFQRNFLIDLKIVFKDAGLTLEDEIESHISLMSFKMEKALKDISELR
NSFFRLLQNFKMTSGKLSRIITDLHESVLKTMNLPISNIFSRFTRVVBDLSKKLNKIV
NLKMEGEETELDKSVIDDLVDPLMHCVRNSMDHGLETVEERVKRGKSKAGTIILRAKN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GLIDNIKTMKEIKVSYYSLGYEIDLEVLFEDMNGMEYAYSMGTLKFKGWADLIWSNPN
YIPNISSRIIKDDVPNYPLASSKMRFKAFRVSKSHSSKEQNFIFYVKDLRVLYDKLSV
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66. .1100
VVNTSNMKIAIVVDSILGEEDFVVKPIKDKFSSSAGIVGATTLGNGKVVLIIDVFKLF
DLQKDTKE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="chemotaxis histidine kinase (cheA-2)"
/protein_id="AAC67024.1"
/db_xref="GI:2688607"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="BB0669"
1168. .3762
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NSVVAPAVVKSESKRYAGDTILGVRVLFPSYSQSSAMIMPPFKIPFYSGESGNQFLGK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="flagellar filament outer layer protein (flaA)"
/protein_id="AAC67025.1"
/db_xref="Gi:268608"
/translation="MYYMKRKAKSILFFLLSTVLFAQETDGLAEGSKRAEPGELVLDF
                                                                               VIPLNNYLETHRITEHDIKLLENYHEVYNLRDEVISVLRLDKLFNITRDDSLIEKFL:
                                                                                                               DLSGRGVGLDVVKKSIEKLNGTILVESEIGLGTIFKIKLPLTLVIIQGLLVKSGSETY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EIFRAAHTLKGSSASLDMMELSDFTHIVEDVFDAIRDGKVNINNDLVDLLLSSLDVIK
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/transl_table=11
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identified by sequence similarity; putative"
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/db_xref="taxon:139"
                                                                                                                                                   EGNVISIEIEDDGIGIDPKVIRRKLIEKGTIKEDAIYSDFELINLIFAPGFSTAVQVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         translation="MEILDLENEELLGVFFEEAQNLVDILEENIMSLEDDPNNSDTID/
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                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="MIQKTTIAADSSSKPRGINYDTGIPFNVLIVDDSVFTVKQLTQI
FTSEGENIIDTAADGEEAVIKYKNHYENIDIVTLDITMPKMGITCLSNIMEFDKNAR
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complement(6187. .6702)
/gene="BB0673"
.complement(6187. .6702)
/gene="BB0673"
/note="similar to GP:1408275 percent identity: 97.56;
identified by sequence similarity; putative"
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ENYGEEEKLLKPGQNFVEKSDFVSDCDNLDILENSKNDFSNKVSSKNDGNNENSTLNN
                                                                                                                                  complement(6699...7745)
/gene="BB0674"
complement(6699...7745)
/gene="BB0674"
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5181, 5666
                                                                                                                                                                                                                                                  /translation="MKIQIIIMLLALLDFPLNARLLDISIEKRADEEIKKYSSYNLIL
EKEYYTNFPTSEIEKNIYKLTEHFYKSIMLNKTNYSLLNSNYKEANKYLIQSELIDKK
FLKYKIFKIKNINGIFKSHSLIYTKKGFYKLELYIENNAEPLKIFNLNITYFLKNLDK
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5706. .6146
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5181. 5666
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3769. .5169
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VIVGLAGSVEGSIIIDMDIETALFVASKLNFEEYDDFDDEETKEMVAATLTEVGNIIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="chemotaxis operon protein (cheX)"
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/note-"similar to GP:1408273 percent identity: 98.76;
identified by sequence similarity; putative"
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NLWGADCLEEFKNEIVESRLSFMNNLNSIFNVLEIGCGSGKETMALANALSEYYVKPF
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identified by sequence similarity; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="BB0672"
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identified by sequence similarity; putative"
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                                                                       /codon_start=1
                                                                                                               /note="hypothetical protein;
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                                                                                                               identified by Glimmer;
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ORGANISM
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KEYWORDS
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  REFERENCE
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TITLE
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Best Local
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                                      l (bases 1 to 3885)
Rollfinke, I.K. and Pfitzner, U.M.
Structure of a heptaubiquitin gene from
Plant Physiol. 104 (1), 299-300 (1994)
                                                                                                                                                                                 Exaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheo Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Asteridae; euasterids I; Solanales; Solanaceae; Solanum;
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(bases 1 to 3885)
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                                                                                                                                                                                                                                                                                                                 repeat; inverted repeat; polyubiquitin gene; ubiquitin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="similar to GB:L42023 SP:P44755 PID:1004013 PID:1222502 PID:1204815 percent identity: 25.58; identified by sequence similarity; putative" /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(8599. .9261)
/gene="BB0676"
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/gene="BB0675"
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/translation="MYKKFSIREALIFIGF
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LETTILRIMLSLEKLREULLRENDLIEIYYNSKEKNLLILIAFARTESMSLLIPTTFI
IISSSKIVNSIPEKQEFNIIKNISIINEKAYIKEKYPFILIIKEKDDIIYSKSDEIFV
YYSPSEYRVIEMEKTKFYIDKYLQRKSDSILGIFLFTLFASFTIFLMNYYKFTKASFL
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MNKLNIPIGILSNKNHEELINLVKNIFGNILFFEIRGYSKNFPPKPDPENALDMILEL
NAQKEEIAYIGDSDVDMLTALNAGFMPIGVSWGFRSVQELKESGAKHIIHNPLELLDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(8599. .9261)
/gene="BB0676"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="NNTKPYEPPLYHYLENHESIKSLSAIEKEIEILNYLKENKKTIA
TEIKNDFESEIKDLIQYVKDKTDIMITPFYLSGIEAIDENIYKPLFSKELTKNDLNLI
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KNYIKILLLKVLVIKYCFEKGIELTTKNIESTSKAISNDTDFLDEKTAKLIIESFFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="B. burgdorferi
/protein_id="AAC67026.1"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 putative"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="BB0677"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="phosphoglycolate phosphatase (gph)"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YETLQTMSPISTLIAIFSARARTPKYKNNPVKGFIGYDESWFSIKQSGSREYDSRIIK
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/transl_table=11
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                                                                                                                                                                                                                                                                                                                                          GI:312159
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                                                  Similarity
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ilarity 100.0%;
Conservative (
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/clone_lib="EMBL3"
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TGKT I TLEVESSDT I DNVKAK I QDKEG I PPDQQRL I FAGKQLEDGRT LADYN IQKEST
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FAGKQLEDGRTLADYNIQKESTLHLVLRLRGGMQIFVKTLTGKTITLEVESSDTIDNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /rpt_type=DIRECT 1319. .1341
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                                                                                                                                                                   GRTLADYNIQKESTLHLVLRLRGGDL"
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ITLEVESSDTIDNVKAKIQDKEGIPPDQQRLIFAGKQLEDGRTLADYNIQKESTLHLV
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/cultivar="craigella"
                                                                                                                                                                                     LRLRGGMQIFVKTLTGKTITLEVESSDTIDNVKAKIQDKEGIPPDQQRLIFAGKQLED
                                                                                                                                                                                                                                     QLEDGRTLADYNIQKESTLHLVLRLRGGMQIFVKTLTGKTITLEVESSDTIDNVKAKI
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (28-APR-2000) Whitehead Institute/MIT Center for Genome Research, 320 Charles Street, Cambridge, MA 02141, USA On Jun 1, 2000 this sequence version replaced gi:7658449. All repeats were identified using RepeatMasker: Smit, A.F.A. & Green, P. (1996-1997) http://ftp.genome.washington.edu/RM/RepeatMasker.html
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Anderson,S., Ballwin,C., Barna, N., Bastien,V., Beda,F.,
Boguslavky,L., Boukhgalter,B., Brown,A., Burkett,G.,
Campopiano,A., Castle,A., Choepel,Y., Colangelo,M., Collins,S.,
Collymore,A., Cooke,P., DeArellano,K., Dewar,K., Diaz,J.S.,
Collymore,A., Cooke,P., DeArellano,K., Dewar,K., Desa,J.S.,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 (bases 1 to 183289)
Birren,B., Linton,L., Nusbaum,C. and Lander,E.
Homo sapiens chromosome 2, clone RP11-353K11
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Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
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                            NOTE: This is a 'working draft' sequence. It currently consists of 32 contigs. The true order of the pieces is not known and their order in this sequence record is
arbitrary. Gaps between the contigs are represented as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 183289)
                                                                                                                                                                                                                                                                                                                                        Chemistry: Dye-terminator Big Dye: 100% of reads Assembly program: Phrap: version 0.960731
Consensus quality: 167319 bases at least 040
Consensus quality: 174945 bases at least Q30
Consensus quality: 178209 bases at least Q30
Consensus quality: 178209 bases at least Q20
Treat of the Consensus quality: 178209 bases at least Q20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Center project name: L9905
Center clone name: S32_K_11
Center clone name: S41Estics
Sequencing vector: M13; M77815;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Center code: WIBR
Web site: http://www-seq.wi.mit.edu
Contact: sequence_submissions@genome.wi.mit.edu
                                                                                                                                                                                         Quality coverage: 4.1 in Q20 bases; Quality coverage: 4.2 in Q20 bases;
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Insert size: 180189; sum-of-contigs
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runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will
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38284 40743: contig of
40744 40843: gap of 1
40844 46140: contig of
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1388 3151: contig of 1764 bp in length
3152 3251: gap of 100 bp
3252 4709: contig of 7
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3 6342: gap of
3 8667: contin
  /organism="Homo sapiens"
/db_xref="taxon:9606"
/chromosome="2"
/map="2"
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10359: contig of 3490 bp
16359: gap of 100'
29359: cont'
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109926: contig of 10797 bp in
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120095: contig of 10069 bp in
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Submitted (03-MAY-2000) Genome Sequencing Center, Washington University School of Medicine, 4444 Forest Park Parkway, St. MO 63108, USA
On Aug 7, 2000 this sequence version replaced gi:8571789.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Insert size: 200000; agarose-fp
Insert size: 197007; sum-of-contigs
Quality coverage: 4.96 in Q20 bases; agarose-fp
Quality coverage: 5.07 in Q20 bases; sum-of-contigs
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Center code: WI
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Sequencing vector: plasmid; 0%
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens chromosome 2 clone RP11-145M22, WORKING DRAFT SEQUENCE, 13 unordered pieces. AC068539
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HTG; HTGS_PHASE1; HTGS_DRAFT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NOTE: This is a 'working draft' sequence. It currently consists of 13 contigs. The true order of the pieces is not known and their order in this sequence record is
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of 12836 bp in
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                                                                unknown length
of 19852 bp in
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AUTHORS
TITLE
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CET25C12/c
LOCUS
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Hinxton, Cambridge CB10
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Genome sequence of the nematode C. elegans: a platform for investigating biology. The C. elegans Sequencing Consortiun Science 282 (5396), 2012-2018 (1998)
                                                                                                                                                                                                                                                                    Caenorhabditis elegans.
Caenorhabditis elegans.
Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida;
Rhabditoidea; Rhabditidae; Peloderinae; Caenorhabditis.
                                                                                                                                                                                                                                                                                                                                                                                                   Caenorhabditis elegans cosmid T25C12, complete sequence.
                                                                                          The C.elegans Sequencing Consortium 2 (bases 1 to 33045)
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25700. .36128
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Location/Qualifiers
1. .198207
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11436. .18140
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47183 c 48061 g 50315 t
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143516. .198207
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 note="assembly_name:Contig27"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="assembly_name:Contig25"
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/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 19.4; DB 2;
Pred. No. 2.4e+02;
Nematode Sequencing Project, Sanger Centre, 1RQ, England and Department of Genetics,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
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                                                                                                                                                                               Sequencing Consortium
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COMMENT
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This sequence is the entire insert of clone T25C12. The true right end of clone F48C5 is at 13899 in this sequence. The start of this sequence (1. .105) overlaps with the end of sequence Z68107.

The end of this sequence (32937. .33045) overlaps with the start of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             jes@sanger.ac.uk or rw@nematode.wustl.edu
Coding sequences below are predicted from computer analysis, using
predictions from Genefinder (P. Green, U. Washington), and other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Current sequence finishing criteria for the C. elegans genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   available information.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a graphical representation of this sequence and its analysis http://wormbase.sanger.ac.uk/perl/ace/elegans/seq/sequence?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /procein_id="CAA91484.1"

//bc_xref="G1:3880223"

//db_xref="G1:3880223"

//db_xref="S1:3880223"

//db_xref="S1:388023"

//db_
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22753...22929,22980...23088,23135...23350,23398...23563,
23615...23762,23807...23914)
/gene="T25C12.1A"
join(9132...9253,20428...20645.21083
                                                                                                                                                                                                                                                                                      TLPNGQIPTTIGETSLQGTDDQTVKWIGPSSVDSNGQKTDSSAASAGDNQNIDVIGDG
SESPTSSNHSAQEIALMTSQQTFLNALKDSSFLFTNPVPTVETAPPLRVAPPINGTTN
GTAKAAGGPERKPYKDDIVKIVRNQDLSEENISMFEIPVPKAIASDPTFRPVSEQQ
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QLPHLKSDYLIRSDMSAFKEVTDLRQAVNLILPMLPLYPTIGNGFNATGLAAQPTLQH
VIQQSSLLRKRBYVAQTFTYPQPECFGQIRPVLSSPAAALQNVIMLNPWIMGSSLKPASP
VIQQSSLLRKRBYVAQTFTYPQPECFGQIRPVLSSPAAALQNVIMLNPWIMGSSLKPASP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             join(20139. 20326,20428. 20645,21083. 21286,22191. 22270,
22753. 22999,22980. 23088,23135. 23350,23398. 23563,
23615. 23762,23807. 23914)
/gene="T25C12.lb"
join(20139. 20326,20428. 20645,21083. 21286,22191. 22270,
23753. 22929,22980. 23088,23135. 23350,23398. 23563,
23615. 23762,23807. 23914)
/gene="T25C12.lb"
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22753. .22929,22980. .23088,23135. .23350,23398. .23563,
23615. .23762,23807. .23914)
/gene="T25C12.1a"
/note="Embryonic nuclear protein lin-14 form B2
cDNA EST yk260a11.5 comes from this gene"
SKRYGEDMPFNLNGAGLIRPKVETVSPEANILNSDQIKSQLESLFAHIPKTESETPLI
EIIQQNISLFTHLIRTKVESQSPPLQGPQ"
Join(27443 ...27598,27646 ...27774,29771 ...29932,29986 ...301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Caenorhabditis elegans"
/db_xref="taxon:6239"
/chromosome="X"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PPLQGPQ"
                                                                                                                                                                               I IQQI IQGKKYEEMEVGECMIQLCKKLAEKRVFGPRLMSQTTVAGLNHSNYANLPIKG
ICYIQHVCRKVLYDKFENEEDFWDKFREAMRKLAARCRRVRHAKKTKHNREEAQAEML
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="embryonic nuclear protein lin-14 form A"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
      .29932,29986. .30141)
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complement(293779.1:3624.3755),
complement(293779.1:3624.3755),
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complement(293779.1:1365.1518),
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                                                                                                                                                                                                                                                                           complement(278543.11107. .174),
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complement(293779.1:3801. .4228),
complement(293779.1:3801. .4228),
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complement(293779.1:3624. .3755),
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complement(293779.1:263. .2574),
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complement(293779.1:265. .1518),
complement(293779.1:1366. .1518),
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complement(31825. .32574), complement(31972. .32419),
complement(31750. .31922), complement(31127. .31255),
complement(31882. .31079), complement(31127. .31255),
complement(31882. .31079), complement(31127. .30836))
//gene="T25C12.3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Complement(278543.1:1591..1834),

Complement(278543.1:709..841),

Complement(278543.1:594..663),

Complement(278543.1:417..486),

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Complement(278543.1:313..373),
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C-type domain), Scores from this gene; cDNA EST yk13d10.3
cDNA EST yk5f7.3 comes from this gene; cDNA EST yk4b3.3
cDNA EST yk2h10.3 comes from this gene; cDNA EST yk4b3.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FLVAVVAIATALVFPEGRASAFDGFLCRLAVKTADPFVDEEFHIAEDKFLAECKKELK
GIPFLEGTCLNFAHSEFGFIIMELESGTAPEDVCRAIEQC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(278543.1:313. .373),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(278543.1:41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(Z78543.1:594. .663)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(Z78543.1:709. .841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(278543.1:1591.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="mkTvLflvAvvAvTTALvfPEQRASAFDCFLCRLAVNTTDPPVD
NELHIVEDKFLAECKKELKGIPFLEQTCLNYAHSEFDPIIKELESGTAPEDDTMKTVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       oin(complement(278543.1:1886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       join(27443. .275
/gene="T25C12.2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           )oin(complement(278543.1:1886.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="SPTREMBL:Q22776"
this gene
k7a3.3 comes from this gene; cDNA EST yk13c12.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .27598,27646. .27774,29771. .29932,29986. .30141)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .1834),
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .1914),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           33045),
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CDS

COMMENT

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1344 ATGAAAAGGAAAACTAAAAG 1325
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                                                                                                                                                                       Diaz,J.S., Dodge,S., Faro,S., Ferreira,P., FitzHugh,W., Gage Galagan,J., Gardyna,S., Ginde,S., Goyette,M., Graham,L., Grand-Pierre,N., Hagos,B., Heaford,A., Horton,L., Hulme,W., Glilev,I., Johnson,R., Jones,C., Karatas,A., LaRocque,K.,
                                                                                                                                                                                                                                                                                                                       Birren, B., Linton, L., Nusbaum, C., Lander, E., Allen, N., Anderson, Barna, N., Bastien, V., Boguslavkiy, L., Boukhjalter, B., Brown, A., Camarata, J., Campopiano, A., Chang, J., Choepel, Y., Colangelo, M., Collins, S., Collymore, A., Cooke, P., DeArellano, K., Dewar, K., Collins, S., Collymore, A., Cooke, P., DeArellano, K., Dewar, K., Collymore, A., Cooke, P., DeArellano, K., Dewar, K., Collymore, A., Cooke, P., DeArellano, K., Dewar, K., Cooke, P., DeArellano, K., Dewar, K., Cooke, P., 
Mihova, T., M.
Norman, C.H.,
                                                            Lamazares,R., Landers,T., Lehoczky,J., Levine,R., Liu,G., MacCean,C., MacConald,P., Marquis,N., Matthews,C., McCart McEwan,P., McKernan,K., McPheeters,R., Meldrim,J., Meneus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE SAMPLING.
AC091103
AC091103.1 GI:13488002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Birren, B., Linton, L., Nusbaum, C. and Lander, E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HTG; HTGS_PHASEO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens chromosome 18, clone RP11-749G1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AC091103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mmalia; Eutheria; Pr
(bases 1 to 62555)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 62555)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               yk276d2.3 comes from this gene CDNA EST yk276d2.5 comes from this gene yk243d6.3 comes from this gene CDNA EST yk243d6.5 comes from this gene yk239d3.3 comes from this gene CDNA EST yk239d3.5 comes from this gyk226g10.3 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cDNA EST yk22a7.5 comes yk383b10.3 comes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cDNA EST yk383b10.5 comes from this gene; cDNA EST yk259f5.3 comes from this gene cDNA EST yk259f5.5 comes from this gene; cDNA EST yk295al.3 comes from this gene cDNA EST yk295al.5 comes from this gene; cDNA EST yk295al.5 comes from this gene; cDNA EST yk294g11.3 comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDNA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDNA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 comes from this gene cDNA EST ykl3dl0.5 comes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          comes from
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          comes from this gene comes from this gene;
                      Mlenga, V., Murphy, T., Naylor, J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62555 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        87.6%;
95.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    s from this gene EST yk10b4.5 comes from this gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             s from this gene EST yk7a3.5 comes from this gene; cDNA EST yk13c12.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         s from this gene
EST yk38al.3 cor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            s from this gene EST yk26b2.5 comes from this gene; cDNA EST yk38al.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST yk4b3.5 comes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         comes from this gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 18.4; DB 3; Pred. No. 6.1e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A HTG 29-MAR-200
clone RP11-749G1 map 18, LOW-PASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  comes from this gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         from
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         from this gene; cDNA EST yk2h10.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene; cDNA EST yk5f7.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 33045;
                                                                                                                                                                                                                                                                                         FitzHugh, W., Gage, D.,
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                              Nguyen, C.,
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                                                                Meneus, L.,
                                                                                                      McCarthy, M.,
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                                  Norbu, C.,
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KEYWORDS SOURCE ORGANISM

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AUTHORS JOURNAL AUTHORS

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       submitted (29-MAR-2001) Whitehead Institute/MIT Center Research, 320 Charles Street, Cambridge, MA 02141, USA All repeats were identified using RepeatMasker: Smit, A.F.A. & Green, P. (1996-1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       http://ftp.genome.washington.edu/RM/RepeatMasker.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NOTE: This record contains 70 individual sequencing reads that have not been assembled into contigs. Runs of N are used to separate the reads and the order in which they appear is completely arbitrary. Low-pass sequence sampling is useful for identifying clones that may be gene-rich and allows overlap relationships among clones to be deduced. However, it should not be assumed that this clone will be sequenced to completion. In the event that
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the record is updated, the accession number will
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Center project name: L12332
Center clone name: 749_G_1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Contact: sequence_submissions@genome.wi.mit.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Web site: http://www-seq.wi.mit.edu
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09 4313: contig of 80
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32 8783: contig of 792 bp
34 8883: gap of 100 bp
34 9674: contig of 791 bp
75 9774: gap of 100 bp
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77 10576: contig of 802 bp
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6 6993: con
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12384: contig of 798 bp in 1
2484: gap of 100 bp
13265: contig of 781 bp in 1
3365: gap of 100 bp
14161: contig of 796 bp in 1
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590 36789; gap of 100 bp
790 37593: contig of 804 bp in length
594 38486: contig of 793 bp in length
487 38386: contig of 800 bp
587 39386: contig of 800 bp
587 39486: gap of 100 bp
587 39486: gap of 100 bp
587 39486: gap of 100 bp
588 40381: contig of 795 bp in length
582 40381: gap of 100 bp
582 40381: gap of 100 bp
582 40381: gap of 100 bp
584 40392: gap of 100 bp
585 4294: gap of 100 bp
586 42992: contig of 798 bp in length
593 43987: contig of 795 bp in length
593 43987: gap of 100 bp
593 43987: gap of 100 bp
593 43987: gap of 100 bp
593 44852: gap of 100 bp
653 45626: contig of 774 bp in length
657 46507: Contig of 798 bp in length
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27778: contig of 814
27878: gap of 100 k
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  49277: gap of
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50194: gap of
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25971: contig of 815 bp in
5071: gap of 100 bp
26864: contig of 793 bp in
4664: gap of 100 bp
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19629:
                                                                             49177: contig of 824
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47403: contig
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21461: contig of 823
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38: gap of 100 bp
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25056: contig
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18705: contig
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contig of 819 bp
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contig of 750
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Bodota, B., Bouck, J., Bowle, S., Brooks, A., Buhay, C., Bunac, C.,
Burkett, C., Burrows, J., Carter, M., Chacko, J., Chen, Z., Cox, C.,
David, R., Delgado, O., Deshazo, D., Ding, Y., Domah-Rashid, N.,
Dugan-Rocha, S., Durbin, K. J., Fernandez, C., Ferraguto, D.,
Porcum-Tansey, J., Frantz, P., Ganesh, R., Gorrell, J.H., Gorrell, J.L.,
Guevara, W., Harris, K., Hernandez, J., Hodgson, A., Hogues, M.,
Holloway, C., Hosak, H., Jackson, L. E., Jackson, L., Jia, Y., Jones, M.,
Kelly, S., Kondejewski, N., Kong, Y., Kovar, C., Leal, B., Li, Z.,
Lichtarge, O., Liu, J., Liu, W., Logan, O., Lozado, R.J., Lu, J.,
Lucier, R., Martin, R., Martinez, C., McLeod, M.P., Mei, G., Morgan, M.,
Morris, S., Nash, S., Nelson, A., Nguyen, N., Nguyen, S.,
Oswal, G., Parish, B., Paxton, S., Payton, B., Perez, L., Pu, L.,
Quiles, M., Reiter, D., Rives, M., Samuel, S., Say, J., Scherer, S.,
Shah, E., Shen, H., Simon, M., Sparks, A., Stemps, A., Sucgang, R.,
Tabor, P., Taylor, T., Vasquez, L., Vinson, R., VO, O., Wahbah, M.,
Watlington, S., Weinstock, G., Weinstock, I. R., Williamson, A.,
Worley, K., Wren, J., Wrensford, G., Yu, W., Zhou, X., Nelson, D. and
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SEQUENCE, 7 unordered pi
AC073440
AC073440.10 GI:9972211
     Worley, K.C.
Direct Submission
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              Homo sapiens chromosome
AC011421
AC011421.2 GI:6102634
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(see http://www.hlysc.bcm.tmc.edu/docs/Genbank.draft_data.html).
NOTE: This is a 'working draft' sequence. It currently
consists of 7 contigs. The true order of the pieces
is not known and their order in this sequence record is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         as soon as it is available and the accession number will be preserved.
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Chemistry: Dye-primer Bodipy: 25% of reads
Chemistry: Dye-terminator Big Dye: 75% of reads
Assembly program: Phrap; version 0.990329
Consensus quality: 131675 bases at least Q40
Consensus quality: 135730 bases at least Q30
Consensus quality: 135730 bases at least particular consensus quality: 134201; sum-of-contigs estimation
Quality coverage: 0x in Q20 bases; sqarose-fp estimation
Quality coverage: 5.1x in Q20 bases; sum-of-contigs estimation
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54366: gap of unknown length
102107: contig of 47741 bp in length
102207: gap of unknown length
132268: contig of 30061 bp in length
132368: gap of unknown length
134381: contig of 2013 bp in length
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134381: gap of unknown length
136149: contig of 1668 bp in length
136149: contig of 1673 bp in length
136249: gap of unknown length
137922: contig of 1673 bp in length
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DOE Joint Genome Institute.
                Homo sapiens
                                                                   AC091111.3 GI:15028541
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HTG 1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        www-shgc.stanford.edu
Quality: Phrap Quality >=40 99.9% of Sequence;
Estimated Total Number of Errors is 0.1.
STS Content:
WI-6744 G05721
WI-6988 G06342.
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6 (Dases 1 to 148142)
DOE Joint Genome Institute and Stanford Human
Direct Submission
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5 (bases 1 to 148142)
DOE Joint Genome Institute and Stanford Human Genome Center
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DOE Joint Genome Institute and Stanford Human Genome Center.
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                HTG; HTGS_PHASE2; HTGS_FULLTOP; HTGS_ACTIVEFIN
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CA 94598, USA
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Pred. No. 6.4e+02;
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MacLean,C., Macdonald,P., Marquis,N., Matthews,C., McCarthy,M.,
McEwan,P., McKernan,K., McPheeters,R., Meldrim,J., Meneus,L.,
Mihova,T., Mlenga,V., Murphy,T., Naylor,J., Nuygen,C., Norbu,C.,
Norman,C.H., O'Connor,T., O'Donnell,P., O'Neil,D., Oliver,J.,
Peterson,K., Phunkhang,P., Pierre,N., Pollara,V., Raymond,C.,
Retta,R., Rieback,M., Riley,R., Rise,C., Rogov,P., Roman,J.,
Rosettl,M., Roy,A., Santos,R., Schauer,S., Schupback,R., Seaman,S.,
Severy,P., Sougnez,C., Spencer,B., Stange-Thomann,N.,
Stojanovic,N., Strauss,N., Subramanian,A., Talamas,J., Tesfaye,S.,
Theodore,J., Travers,M., Travis,N., Trigilio,J., Vassiliev,H.,
Viel,R., Vo,A., Wilson,B., Wu,X., Wyman,D., Ye,W.J., Young,G.,
Zainoun,J., Zembek,L., Zimmer,A. and Zody,M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (29-MAR-2001) Whitehead Institute/MIT Center for Genome Research, 320 Charles Street, Cambridge, MA 02141, USA On Jul 29, 2001 this sequence version replaced gi:14389354. All repeats were identified using RepeatMasker: Smit, A.F.A. & Green, P. (1996-1997) http://ftp.genome.washington.edu/RM/RepeatMasker.html
                                                                                                                                                                                             l Similarity
19; Conser
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Direct Submission
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This sequence will be replaced by the finished sequence as soon as it is available and the accession number will be preserved.
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----- project Information
Center project name: L12690
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Center clone name: 837_M_2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /Clone="RP11-837M2"
/Clone_lib="RPCI-11 Human Male BAC"
/Glone_lib="RPCI-11 Human Male BAC"
/30207 c 30590 g 48568 t 59
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TITLE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequencing vector: M13; 100%
Sequencing vector: plasmid; 0%
Chemistry: Dye-primer ET; 91% of reads
Chemistry: Dye-terminator Big Dye; 9% of reads
Assembly program: Phrap; version 0.990319
Consensus quality: 149846 bases at least 040
Consensus quality: 151997 bases at least 020
Consensus quality: 153141 bases at least 020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (08-FEB-2000) Genome Sequencing Center, Washington University School of Medicine, 4444 Forest Park Parkway, St. Louis, MO 63108, USA
On Mar 30, 2000 this sequence version replaced g1:7235302.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens chromosome 8 closeQUENCE, 26 unordered pieces ACO23145
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Center: Washington University Genome Sequencing Center
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                                                                                                                                                                                                                                                                                                                    * runs of N, but the exact sizes of the gaps are unknown.

* This record will be updated with the finished sequence

* as soon as it is available and the accession number will

* be preserved.
                                                                                                                                                                                                                                                                                                                                                                                 * NOTE: This is a 'working draft' sequence. It currently consists of 26 contigs. The true order of the pieces is not known and their order in this sequence record is arbitrary. Gaps between the contigs are represented as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Insert size: 184000; agarose-fp Insert size: 156512; sum-of-contigs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Center project name: H_NH0621J21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Web site:http://genome.wustl.edu/gsc/index.shtml
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Center code: WUGSC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Direct Submission
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/db_xref="taxon:9606"
/chromosome="8"
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1. .159012
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note="assembly_name:Contig21"
                         /note="assembly_name:Contig20"
                                                    /note-"assembly_name:Contig19"
                                                                             33280. .37503
/note="assembly_name:Contig18"
                                                                                                        note="assembly_name:Contig17"
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26590, .29067
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/note="assembly_name:Contig14
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3: contig of 11816 bp in length
3: gap of unknown length
5: contig of 9917 bp in length
6: gap of unknown length
7: contig of 13147 bp in length
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8: contig of 12405 bp in length
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19; Conserv
                                                                                                                                                                                                                                                                                 Hattori,M., Ishii,K., Toyoda,A., Taylor,T.D., Hong-Seog,P., Fujiyama,A., Yada,T., Totoki,Y., Watanabe,H. and Sakaki,Y. Fujiyama,A., Yada,T., Totoki,Y., Watanabe,H. and Sakaki,Y. Fujiyama,A., Yada,T., Totoki,Y., Watanabe,H. and Sakaki,Y. Fujiyama, A., Yada,T., Totoki,Y., Watanabe,H. and Sakaki,Y. The Institute of Physical Submitted (17-MAR-2000) Masahira Hattori, Genomic Sciences Center (GSC); Kitasato Univ., 1-15-1 Kitasato, Sagamihara, Kanagawa 228-8555, Kitasato Univ., 1-15-1 Kitasato, Sagamihara, Kanagawa 228-8555, Japan (E-mail:hattori@gsc.riken.go.jp/, Tel:81-42-778-9923, Fax:81-42-778-9924)
On May 30, 2000 this sequence version replaced gi:7288187.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HTG 30-MAY-2000 HOMO Sapiens chromosome 18 clone RP11-779H19 map 18q21, WORKING DRAFT SEQUENCE, 23 unordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 161624)

1 (bases 1 to 161624)

Hattori,M., Ishii,K., Toyoda,A., Taylor,T.D., Hong-Seog,P., Fujiyama,A., Yada,T., Totoki,Y., Watanabe,H. and Sakaki,Y. Homo sapiens 161,624 genomic DNA of 18q21

Published Only in DataBase (2000) In press

2 (bases 1 to 161624)

University Toyoda a Taylor T.D. Hong-Seog D. Lichiy Toyoda a Taylor T.D. Hong-Seog D.
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Homo sapiens DNA, clone:RP11-779H19
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
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Center code: RIKEN
Web site: http://hgp.gsc.riken.go.jp/
Contact: hattori@gsc.riken.go.jp
Contact: hattori@gsc.riken.go.jp
Center: project Information
Center project name: HumDraft18
Center clone name: RP11-779H19
Center: Summary Statistics
Sequencing vector: PCR products; 100% of reads
Chemistry: Dye-terminator ET-amersham; 100% of re
Assembly program: Phrap; version 0.990329
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60744. .69312
/note="assembly_name:Contig23"
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141485. 159012
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27457 c 27795 g 48121 t
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117098_ .127813
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104593. .116997
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95.0%;
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Pred. No. 6.4e+02;
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150921 154114 contig of 3194 bp in length
154215 156288 contig of 2074 bp in length
156389 158482 contig of 2094 bp in length
156389 158482 contig of 1860 bp in length
158583 160442 contig of 1860 bp in length
160543 161624 contig of 1860 bp in length
160543 to contig of 1860 bp in length
160544 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    order in this sequence record is arbitrary. Gaps between the contigs are represented as runs N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   as soon
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                                                                                                                                                                                                                                                                                                                                                                                                                                                           32754: contig of 32754 bp in length
32755 32854: gap of 100 bp
32855 48719: contig of 15865 bp in length
48720 48819: gap of 100 bp
48820 64088: contig of 15269 bp in length
64089 64188: gap of 100 bp
64189 76256: contig of 12068 bp in length
76257 76356: gap of 100 bp
76356 86395: contig of 9339 bp in length
                                                                             116656 122099;
122101 122199; gat
122200 125461; gat
125462 125561; gat
12562 131077;
131078 131177; gat
131178 135924; gat
131925 136024; gat
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102696 110667
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Quality coverage: 5.50x in Q20 bases; sum-of-contigs
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12099;
199: gap of
125461: contig of 320, 25561: gap of
131077: contig of 5516 bp in length
131177: gap of
135924: contig of 4747 bp in length
135924: gap of
100 bp
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                                                                                                                                                                                                                                                                                                                                                                94552: contig of 8
14652: gap of 102595: contig of 7
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110667: cr
0767
                                                                                                                                                                                   16655: gap of 100 bp
122099: contig of 5444 bp in
122199: gap of 100 bp
125461: contig of 3262 bp in
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                                                                                                                                                                                                                                                                              110667: contig of 7972 bp in 0767: gap of 100 bp 1116555: contig of 5788 bp in
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160543 161624: contig of 1082
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50920: gap of 100 bp
154114: contig of 3194 bp 1
54214: gap of 100 bp
156288: contig of 2074 bp 1
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(58482: contig of 2094 bp
(582: gap of 100 bp
(5042: contig of 1860 bp
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50820: contig of 3340 bp
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TITLE
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Grand-Pierre, N., Grant, G., Hayus, ...,
Grand-Pierre, N., Grant, G., Hayus, ...,
Howland, J.C., Illev, I., Johnson, R., Jones, C., Kann, L., Raaucus, Howland, J.C., Illev, I., Johnson, R., Landers, T., Lehoczky, J.,
Klein, J., LaRocque, K., Lamazares, R., Landers, T., Marquis, N.,
Levine, R., Lieu, C., Liu, G., Locke, K., Macdonald, P., Marquis, N.,
McCarthy, M., McEwan, P., McGurk, A., McKernan, K., McPheeters, R.,
Meldrin, J., Meneus, L., Mihova, T., Miranda, C., Mlenga, V., Morrow, J.,
Murphy, T., Naylor, J., Norman, C.H., O'Connor, T., O'Donnell, P.,
O'Neil, D., Olivar, T.M., Oliver, J., Peterson, K., Pierre, N.,
Pisani, C., Pollara, V., Raymond, C., Riley, R., Rogov, P., Rothman, D.,
Roy, A., Santos, R., Schauer, S., Severy, P., Spencer, B.,
Stange-Thomann, N., Stojanovic, N., Subramaniah, A., Talamas, J.,
Tesfaye, S., Theodore, J., Tirrell, A., Travers, M., Trigilio, J.,
Vacsillev, H., Viel, R., Vo, A., Wilson, B., Wu, X., Wyman, D., Ye, W.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 tgaaaaggaaagctaaaagt 21
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (25-MAR-2000) Whitehead Institute/MIT Center for Genome Research, 320 Charles Street, Cambridge, MA 02141, USA On Apr 20, 2000 this sequence version replaced gi:7328788. All repeats were identified maior parameters.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Birren, B., Linton, L., Nusbaum, C., Lander, E., Abraham, H., Allen, N., Anderson, S., Ballwin, J., Barna, N., Bastlen, Y., Beda, F., Boukhgalter, B., Brown, A., Burkett, G., Campopiano, A., Castle, A., Choepel, Y., Colangelo, M., Collins, S., Collymore, A., Cooke, P., DeArellano, K., Dewar, K., Diaz, J.S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           All repeats were identified using RepeatMasker:
Smit, A.F.A. & Green, P. (1996–1997)
http://ftp.genome.washington.edu/RM/RepeatMasker.html
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Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
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                                                                                            Chemistry: Dye-terminator Big Dye; 100% of reads Assembly program: Phrap; version 0.960731 Consensus quality: 156378 bases at least Q40 Consensus quality: 160493 bases at least Q30 Consensus quality: 162206 bases at least Q20
                                  Insert size: 145000; aç
Insert size: 163452; su
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                                                                                                                                                                                                                                                                                                                                   Center project name: L7522
Center clone name: 725_F_23
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------ Project Information
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95.0%;
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                                                       145000; agarose-fp
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                                                                                                                                                                                                                                                                     M77815;
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39120 ___52290: contig of 13171 bp in length
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17790 23842: contig of 6053 bp
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3513 3612: contig of 1869 bp in length
3613 6325: contig of 100 bp
6326 6425
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                                                                                                   /note="assembly_fragment" 110084. .164652
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84406: contig of 18357 bp in length
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (24-MAR-2000) Masahira Hattori, The Institute of Physical and Chemical Research (RIKEN), Genomic Sciences Center (GSC); Kitasato Univ., 1-15-1 Kitasato, Sagamihara, Kanagawa 228-8555, Japan (E-mail:hattori@gsc.riken.go.jp, URL:http://hgp.gsc.riken.go.jp/, Tel:81-42-778-9923, Fax:81-42-778-9924)
On May 30, 2000 this sequence version replaced gi:7340850.
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Contact: hattori@gsc.riken.go.jp
----- Project Information
Center project name: HumDraft18
Center clone name: Rp11-83712
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50096
70768
89391
105548
120474
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Pred. No. 6.4e+02;
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* NOTE: This is a 'working draft' sequence. It currently
* consists of 17 contigs. The true order of the pieces
* is not known and their order in this sequence record is
* arbitrary. Gaps between the contigs are represented as
* runs of N, but the exact sizes of the gaps are unknown.
* This record will be updated with the finished sequence
* as soon as it is available and the accession number will
* be preserved.
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152607 155699: contig of 3093 bp
155700 155799: gap of 100 bp
155800 158705: contig of 2906 bp
158706 158805: gap of 100 bp
158806 152039: contig of 3234 bp
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166502: contig of 2288 bp
66602: gap of 100 bp
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
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Best Local S
Matches 19
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    84709 TGAAAAGCAAAGCTAAAAGT 84690
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                                                                                                           CE 2 (bases 1 to 170413)

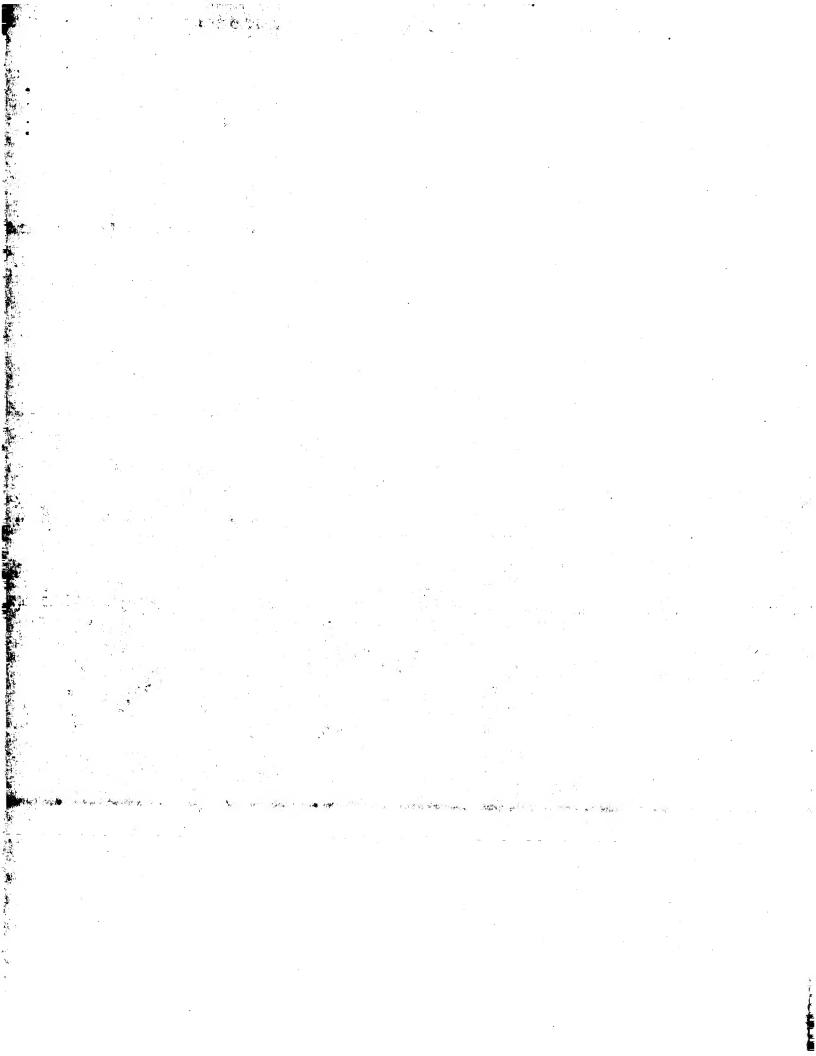
RS Birren, B., Linton, L., Nusbaum, C., Lander, E., Allen, N., Anderson, S., Barna, N., Bastien, V., Boguslavkiy, L., Boukhgalter, B., Brown, A., Camarata, J., Campopiano, A., Choepel, Y., Colangelo, M., Collins, S., Collymore, A., Cooke, P., DeArellano, K., Dewar K., Diaz, J.S., Dodge, S., Garo, S., Ferreira, P., Fitzhugh, W., Gage, D., Galagan, J., Gardyna, S., Ginde, S., Goyette, M., Graham, L., Grand-Pierre, N., Hagos, B., Heaford, A., Horton, L., Hulme, W., Illev, I., Johnson, R., Jones, C., Karatas, A., LaRocque, K., Lamazares, R., Landers, T., Lehoczky, J., Levine, R., Liu, G., MacLean, C., Macdonald, P., Marquis, N., Matthews, C., McCarthy, M., McEwan, P., McKernan, K., Murphy, T., Naylor, J., Nguyen, C., Norbu, C., Norman, C., H., O'Connor, T., O'Donnell, P., O'Neil, D., Oliver, J., Peterson, K., Phunkhang, P., Pierre, N., Pollara, V., Raymond, C., Retta, R., Rieback, M., Riley, R., Rise, C., Rogov, P., Roman, J., Rosetti, M., Roy, A., Santos, R., Schauer, S., Schupback, R., Seaman, S., Severy, P., Sougnez, C., Spencer, B., Staues, J., Tesfaye, S., Theodore, J., Strauss, N., Subramanian, A., Talamas, J., Tesfaye, S., Theodore, J., Venhan, J., Wul, X., Wyman, D., Ye, W. J., Young, G., Zainoun, J., Vel, R., Wilson, B., Wu, X., Wyman, D., Ye, W. J., Young, G., Zainoun, J., Zenbek, L., Zimmer, A., and Zody M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AC090405 170413 bp DNA HTG
Homo sapiens chromosome 18 clone RP11-779H19
SEQUENCE, 12 unordered pieces.
9
                       Submitted (17-FEB-2001) Whitehead Institute/MIT Center for Genome Research, 320 Charles Street, Cambridge, MA 02141, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens chromosome Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Birren, B., Linton, L., Nusbaum, C. and Lander, E. Homo sapiens chromosome 18, clone RP11-779H19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mammalia; Eutheria; Pr
1 (bases 1 to 170413)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AC090405.2 GI:14210571
HTG; HTGS_PHASE1; HTGS_DRAFT; HTGS_FULLTOP.
                                                                            Direct Submission
                                                                                                 Zembek, L., Zimmer, A. and Zody, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalla; Eutherla; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
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155800. .158705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="assembly_fragment"
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158806. .162039
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note-"assembl
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95.0%;
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32593 g 51749 t
sequence version replaced gi:12958041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 18.4; DB 2;
Pred. No. 6.4e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     y_fragment"
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                    Cambridge, MA 02141,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1600 others
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18, WORKING
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Anderson, S.,
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SOURCE

В

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misc_feature
                                                                                  misc_feature
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          All repeats were identified using RepeatMasker: Smit, A.F.A. & Green, P. (1996-1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chemistry: Dye-terminator Big Dye; 100% of read Assembly program: Phrap; version 0.960731 Consensus quality: 165803 bases at least Q40 Consensus quality: 167767 bases at least Q30 Consensus quality: 168509 bases at least Q30 Consensus quality: 168509 bases at least Q20 Insert size: 157000; agarose-fp contigs Quality coverage: 8.9 in Q20 bases; sum-of-cont Quality coverage: 8.3 in Q20 bases; sum-of-cont
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29597 29696; gap of 100 bp 29697 30720; contig of 1024 bp in length 30721 30820; gap of 100 bp 30721 30820; gap of 100 bp 31522; contig of 702 bp in length 31523 31622; gap of 100 bp 32468; gap of 100 bp 32469 3330; contig of 862 bp in length 3331 33430; gap of 100 bp 34638 34737; gap of 100 bp 34638 34737; gap of 100 bp 34738 3948; contig of 1207 bp in length 3638 3948; contig of 4221 bp in length 39049 43570; contig of 4522 bp in length 43571 43670; gap of 100 bp 43570; contig of 4522 bp in length 43571 162270; gap of 100 bp 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NOTE: This is a 'working draft' sequence. It currently consists of 12 contigs. The true order of the pieces is not known and their order in this sequence record is
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Center project name: L12714
Center clone name: 779_H_19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Web site: http://www-seq.wi.mit.edu Contact: sequence_submissions@genome.wi.mit.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----- Summary Statistics
Sequencing vector: Plasmid; n/a; 100% of reads
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Center: Whitehead Institute/ MIT Center for Genome
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28013 2875
28760 28859:
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                                                                                                                                                                                                                                                            28013
                                                                                                                                                                                                                                                                                                                                                                                                                         /clone="RP11-779H19"
/clone_lib="RPCI-11 Human Male BAC"
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                                                                                           29697.
                                                                                                                                                                                                                                                                                           vector_side:left"
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/db_xref="taxon:9606"
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                                                                                                                                                                                                        note="assembly_fragment"
                                                                                                                                                                                                                                                                                                                                                                         /note="assembly_fragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
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28759: contid of 747 bp
2859: gap of 100 bp
2859: contid of 737 bp
29596: gap of 100 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -- Genome Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        27912: contig of 27912 bp in length
                                                                                           .30720
                                                                                                                                                                          . 29596
                                                                                                                                                                                                                                                            .28759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     confly 100 bp
p of 100 bp
contig of 118500 bp in length
pap of 100 bp
ap of 100 bp in length.
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sum-of-contigs
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Search completed: March 20, 2002, 01:59:19 Job time: 8555 sec
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ORIGIN
                                                                                                                                                      Query Match 87.6%; Score 18.4; DB 2; Length 170413; Best Local Similarity 95.0%; Pred. No. 6.4e+02; Matches 19; Conservative 0; Mismatches 1; Indels 0;
                                                                                                                                                                                                                                                                                                                              misc_feature
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/note="assembly_fragment"
feature 32469. 33330
/note="assembly_fragment"
feature 3431. 34637
/note="assembly_fragment"
feature 34738. 38948
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feature 39049. 43570
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feature 43671. 152170
/note="assembly_fragment"
feature 162271. 170413
feature 162271. 170413
clone_end:T7
vector_side:right"
50853 a 32105 c 32644 g 53709 t 1
                                                                                                                                                                                                                                                              1102 others
                                                                                                                                                        0; Gaps
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GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd.

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OM protein - protein search, using sw model

Run on:

March 19, 2002, 23:03:34; Search time 583.26 Seconds (without alignments)
44.535 Million cell updates/sec

Title:
Perfect score: 1719
Sequence:
1 MKRKAKSILFFLLSTVLFAQ.......FQNFVEKIESEKPEESSPKN 341

Scoring table:
BLOSUM62
Gapop 10.0, Gapext 0.5

Searched:
219241 seqs, 76174552 residues

Total number of hits satisfying chosen parameters: 219241

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 100%
Listing first 45 summaries
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Database :

PIR_68:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

SUMMARIES

Result	Score	Query Match	Length	DB	TB	Description
_ :	1701	99.0	344	2	C70183	flagellar filament
2	361.5	Ë	350	N	w	lar
ω	331.5	9	320	<u>_</u>	4	ic flage
4	202.5	11.8	301	N	A32814	
s	121.5		242	N	н71297	outer me
6	112		4152	N	T31102	
7	109		444	ب	140492	н
œ	108		580	N	F64385	cal prot
9	106.5		695	N	G64327	ing A
10	106	6.2	1181	Ŋ	C82500	IcmF-related prote
11	105.5		705	N	A41322	N-acetylmuramoyl-L
12	104.5		1119	N	B70126	surface-located me
13	104.5	6.1	4919	N	0	hypothetical prote
14	104	٠	499	N	6	Kin
. 15	103		650	N	S14949	lec
16	T02.5		914	N	JC5574	
17	102		241	N	A71298	probable flagellar
BT.	101.5		613	N	JC6033	mosquitocidal prot
, <u>+</u>	101.5		622	.	A64494	
20	101.5		627	N	B64710	ific
) L	101.5	л U	1000	ى د	A45515	ecul
22	101	л . о ч	3166	۸ د	670163	P
24	100.5	5.8	318	N)	E71240	hypothetical prote
25	100		651	Ŋ	A96781	መ
26	100		. 701	N	H71874	-tRNA lig
27	99.5		401	N	A69368	hypothetical prote
28	99.5		907	N	35	_
29	99	5.8	1408	N	T45039	hypothetical prote

RESULT

N

ALIGNMENTS

Оу	Qy Qy	Qy Qy	Qy Db	dg VQ	Qy Db		CAAAAAAAAA N. SRCCCHCR
, 301 5 304	, 241 5 244	7 181 5 184	, 121 5 124		0 ~	Query Ma Best Low Matches	RESULT C70183 flagella C; Specie C; Date: C; Dacess R; Frase; Son, D; ; Bowmar Nature A; Author A; Title: A; Artitle: A; Access A; Status A; Status A; Rolect A; Rolect A; Cross A; Superi
1 AHETFKRVLKLREKISIAEGSFQNFVEKIESEKPEESSPKN 341 	1 FKAFRVSKSHSSKVKNFIFYVKDLRVLYDKLSVSIDSDIDSESVFKVYETSGTESLRKLK 300 :	1 DLEVLFEDMNGMEYAYSNGTIKEKGWADLIWSNDNYIPNISSRIIKDDVPNYPLASSKMR 240 	1 LGVRVLFPSYSQSSAMIMPPFKIPFYSGESGNQFLGKGLIDNIKTMKEIKVSVYSLGYEI 180 	61 YVYSGASGTVKPEDMVVDLGTNNWSVLLTPSARLQAYVKNSVVAPAVVKSESKRYAGDTI 120 	1 MKRKAKSILFFLLSTVLFAQETDGLAEGSKRAEPGELVLDFAELARDPSSTRLDLTNYVD 60 	Query Match 99.0%; Score 1701; DB 2; Length 344; Best Local Similarity 98.8%; Pred. No. 5.8e-116; Matches 337; Conservative 2; Mismatches 2; Indels 0; Gaps 0;	RESULT 1 C70183 C70183 flagellar filament outer layer protein (flaA) homolog - Lyme disease spirochete C;Species: Borrelia burgdorferi (Lyme disease spirochete) C;Date: 13-Feb-1998 #sequence_revision 13-Feb-1998 #text_change 02-Sep-2000 C;Accession: C70183 Son, D.; Peterson, J.; Kerlavage, A.R.; Quackenbush, J.; Salzberg, S.; Hanson, M.; Wh son, D.; Peterson, J.; Kerlavage, A.R.; Quackenbush, J.; Salzberg, S.; Hanson, M.; Vu ; Bowman, C.; Garland, S.; Fujii, C.; Cotton, M.D.; Horst, K.; Roberts, K.; Hatch, B. Nature 390, 580-586, 1997 A;Authors: Smith, H.O.; Venter, J.C. A;Title: Genomic sequence of a Lyme disease spirochaete, Borrelia burgdorferi. A;Reference number: A70100; MUID:98065943 A;Recession: C70183 A;Status: preliminary; nucleic acid sequence not shown; translation not shown A;Residues: 1-344 (KIE> A;Cross-references: GB:AE001168; GB:AE000783; NID:92688598; PIDN:AAC67025.1; PID:9268 A;Experimental source: strain B31 C;Superfamily: spirochete flagellar sheath protein

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A; Gene:
C; Superf
F; 1-20/D
F; 21-350
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A; Residues: 21-350 < ISA2>
A; Cross-references: GB: M26525; NID: g155056
A; Cross-references: Champion, C.I.; Miller, J.N.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     D71348

Flagellar filament outer layer protein flaA-1 precursor - syphilis spirochete ni Alternate names: 37K endoflagellar sheath protein FlaA; minor endoflagellar protein Fla
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A;Accession: D71348
A;Statue: ----
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A;Residues: 21-28,'x',30-36,'G',38-40 <BLA>
R;Norris, S.J.; Charon, N.W.; Cook, R.G.; Fuer
J. Bacteriol. 170, 4072-4082, 1988
A;Title: Antigenic relatedness and N-terminal
A;Reference number: A91882; MUID:88314903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R:Blanco, D.R.; Champion, C.I.; Miller, J.N.; Lovett, Infect. Immun. 56, 168-175, 1988
A:Title: Antigenic and structural characterization of A;Reference number: A91753; MUID:88085470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Cross-references: GB:M63142; GB:M27915; NID:g155058 R;Isaacs, R.D.; Hanke, J.H.; Guzman-Verduzco, L.M.; NE Infect. Immun. 57, 3403-3411, 1989 A;Title: Molecular cloning and DNA sequence analysis ca;Reference number: A37187; MUID:90035409 A;Accession: A37187
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                                                                                                                                                                                                                                                                                   В
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A; Residues: 21-48,'R',50-51 <NOR>
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A; Residues: 1-29 <ISA1>
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A; Residues: 1-350 <COL>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query
Best L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ;Superfamily: spirochete flagellar sheath protein
;1-20/Domain: signal sequence #status predicted <SIG>
;21-350/Product: flagellar filament outer layer protein flaA-1 #status experimental
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                                                                  RVLFPSY-SQSSAMIMPPFKIPFYS----GESGN-------
                                                                                                                                                                                                                                                                                       ESVLIDFAKLNADIMADKSGGMTHNRR-----TVLDYASLAD--
                                                                                                                                                                                                                                                                                                                                                         KSIL--FFLLSTVLFAQETDGLAEGSKRAEPGELVLDFAELARDPSSTRLDLTNYVDYVY 63
RVLFPTWDSNANAMIKPAFVIPAYEVMAQVDDQGNVQAPTEEEKASGKGRFEDGYGVVKN 177
                                                                                                                                                                                                             SGASGIVKPEDMYVDLGINNWSVLLTPSARLQAYVKNSVVAPAVVKSESKRYAGDTILGV 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                           --EQKALMRSSLAVAQWEVVLNSSARNPVAHAASRVIEAPVSEGAKSFAGERVLGV 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                21.0%;
28.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 361.5; DB 2; Pred. No. 7.1e-19;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence homology
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                                                                     -QFL-GKGLIDN 162
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A;Gene:
C;Superf
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C; Species: Treponema hyodysenteriae
C; Date: 30-Jun-1993 #sequence_revision 30-Jun-199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
A43824
                                                                    C;Superfamily: spirochete flagellar sheath protein C;Keywords: flagellum; periplasmic space F;1-19/Domain: signal sequence #status predicted <SIG>F;20-320/Product: periplasmic flagellar sheath protein
                                                                                                                                                                                                               A;Cross-references: EMBL:X63006; NID:g433523; PIDN:CAA44735.1; PID:g433524 C;Comment: The flagella of this spirochete are reported to be enclosed com
                                                                                                                                                                                                                                                               A; Molecule type: DNA
A; Residues: 1-320 <KOO>
                                                                                                                                                                                                                                                                                                                                R;Koopman, M.B.; de Leeuw, O.S.; van der Zeijst, B.M.; Kusters, J.G. Infect. Immun. 60, 2920-2925, 1992
A;Title: Cloning and DNA sequence analysis of a Serpulina (Treponema) hyodysenteriae A;Reference number: A43824; MUID:92307926
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GVLKSIAVNTYGMNYPHGLYVMMRDQDGEVHRYEMGYLLFDSWKELVMNNPSYISDVRS
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                                                                      periplasmic flagellar sheath protein
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Length
                                                                         #status experimental
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                              RVLKLREKISIAE 319
                                                                                                                                                                                             LAAWNSYALVKPVYELEMYGGADGTKYTEGKGVIHNVGEIKSISSWVYGRNYLISYFVNL 163
                                                                                                                                                                                                                                                        TNEVVPVAENLYNDNWVVWLNESARLTENRRNSYVTNVDSKGNNGAWEAGKVLGVRVHFP 103
                                                                                                                                                                                                                                                                                    IVKPEDMYVDLGINNWSVLLTPSARLQAYVKNSVVAPAVVKSESKRYAGDTILGVRVLFP 128
                                                                                                                                                                                                                                                                                                                        LFVVLTSIFIAASAYGLTNST-----LIDFA--
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--ARIREQAELRD
                                                                              SKSHSSKVKNFIFYVKDLRVLYDKLSVSIDSDIDSESVFKYYETSGTESLRKLKAHETFK 306
                                                                                                                            QNEFGELKSYPMGTVYFNGWRQVRWENREYLPNVRDRVLVRE-PLYPRMIPSVKLDSLGF
                                                                                                                                                          EDMNGMEYAYSMGTLKFKGWADLIWSNPNYIPNISSRIIKDDVPNYPLASSKMRFKAFRV 246
                                                                                                                                                                                                                        SYSQSS-AMIMPPFKIPFYSGESGNQFL-GKGLIDNIKTMKEIKVSVYSLGYEIDLEVLF 186
                                                               YRTKDTKGGDFITYVKDVTLEYDVVVVDFEEDIDDEATWQLLK--
                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
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                                                                                                                                                                                                                                                                                                                                                                                        63;
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pred. No. 9.4e-17;
53; Mismatches 129;
                                                                                                                                                                                                                                                                                                                                                                                        Indels
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                                                                 276
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8

flagellar filament surface antigen c;Speckes: Spirochaeta aurantia C;Date: 20-Oct-1989 #sequence_revisicC;Accession: A32814

#sequence_revision

Spirochaeta aurantia

20-Oct-1989 #text_change

07-Feb-1997

A32814

R;Brahamsha, J. Bacteriol

B.; Greenberg,

1692-1697,

1989

Bacteriol.

hemagglutinin-like

protein

Length 4152;

Caps

15;

55

107 97

256

213

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A;Title: Cloning and sequence analysis of A;Reference number: A32814; MUID:89155480 A;Accession: A32814
A;Status: preliminary; not compared with c A;Molecule type: DNA A;Residues: 1-301 <BRA> C;Keywords: surface antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Accession: H71297

R;Fraser; C.M.; Norris, S.J.; Weinstock, G.M.; White, O.; Sutton, G.G.; Dodson, rson, J.; Khalak, H.; Richardson, D.; Howell, J.K.; Chidambaram, M.; Utterback, they, L.; Weidman, J.; Smith, H.O.; Venter, J.C.
Science 281, 375-388, 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               probable outer membrane protein - syphilis spirochete
C;Species: Treponema pallidum subsp. pallidum (syphilis spirochete)
C;Date: 24-Jul-1998 #sequence_revision 24-Jul-1998 #text_change 05-Nov-1999
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A;Experimental source: strain Nichols
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Title: Complete genome sequence of Treponema pallidum, the A;Reference number: A71250; MUID:98332770 A;Accession: H71297
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A; Residues: 1-242 <COL>
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                                                                                                                                                                                                                                                                          PLAAQRSKVNYQAYFIDDFDGAS-----EDQGL-AWRAAGSKFITKGFPILKYFEG
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                                        HIPQTS ---
                                                                           YIPNISSRIIKDDVPNYPLASSKMRFKAFRVSKSHSSKVKNFIFYVKDLRVLYDKLSVSI
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                                                                                                                                                      GKGLIDNIKTMKEIKVSVYSLGYEIDLEVLFEDMNGMEYAYSMGTLKFKGWADLIWSNPN
                                                                                                                                                                                              MPQAVRMAGSWQGKDKEARFIGVECKFNRQGNNWLDLIPTKGGSDYEIPLRGVVSG----
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                                                                                                                 -FDVWVWGAGYQYSLEALVRDCTGRVHTLLIGNLDFQGWKNLSVSVPT
                                      RYLGSAQHLSFVGFRIRTXPSERVDDFY-----VFFDQFKALA 217
                                                                                                                                                                                                                                                                                                                                                   7.1%; Score 121.5; | 22.0%; Pred. No. 0.1; tive 31; Mismatches
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McDd
                                                                                                                                                  gntr-type transcription regulator homolog ycxD - Ba N;Alternate names: hypothetical protein 8 (srfA ope C;Speckes: Bacillus subtilis C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 C;Accession: I40492; F69766; S34990 R;Cosmina, P.; Rodriguez, F.; de Ferra, F.; Grandi, Mol. Microbiol. 8, 821-831, 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R:Ward, C.K.; Lumbley, S.R.; Latimer, J.L.; Cope, L.D.; Hansen, J. Bacteriol. 180, 6013-6022, 1998
A;Title: Haemophilus ducrey! secretes a filamentous hemagglutin A;Reference number: z20984; MUID:99030326
A;Accession: T31102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            filamentous hemagglutinin 1 - Haemophilus ducreyi
C;Species: Haemophilus ducreyi
C;Date: 22-Oct-1999 #sequence_revision 22-Oct-1999 #text_change 22-Oct-1999
                                  A;Status: translated from A;Molecule type: DNA A;Residues: 1-444 <RES>
                                                                                           A;Title: Sequence and analysis of the genetic A;Reference number: I40485; MUID:93360813 A;Accession: I40492
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A; Gene: lspA1
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A; Residues: 1-4152 <WAR>
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A;Cross-references: EMBL:X70356; NID:g396480; PIDN:CAA49821.1;
A;Experimental source: ATCC 21332
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Pred. No. 28;
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#text_change 21-Jul-2000

G.;

Perego,

X for

Venema, G.; surfactin synthes

responsible

PID:g396486

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C;Species: Methanococcus jannaschii
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 22-Oct-1999
C;Accession: F64385
R;Bult, C.J.; White, O; Olsen, G.J.; Zhou, L.; Fleischmann, R.D.; Sutton, G.G.; Blak; Reich, C.I.; Overbeek, R.; Kirkness, E.F.; Weinstock, K.G.; Merrick, J.M.; Glodek, Reich, C.I.; Overbeek, R.; Kirkness, E.F.; Weinstock, K.G.; Merrick, J.M.; Glodek, Ron, J.D.; Sadow, P.W.; Hanna, M.C.; Cotton, M.D.; Roberts, K.M.; Hurst, M.A.
Science 273, 1058-1073, 1996
A;Authors: Kaine, B.P.; Borodovsky, M.; Klenk, H.P.; Fraser, C.M.; Smith, H.O.; Woese A:Title: Complete genome sequence of the methanogenic archaeon, Methanococcus jannasc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Gene:
C;Superf
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A;Authors: Foulger, D.; Fritz, C.; Fujita, M.; Fujita, Y.; Fuma, S.; Galizzi, A.; Galler iech, J.; Harwood, C.R.; Henaut, A.; Hilbert, H.; Holsappel, S.; Hosono, S.; Hullo, M.F. Koetter, P.; Koningstein, G.; Krogh, S.; Kumano, M.; Kurita, K.; Lapidus, A.; Lardinois, A;Authors: Lauber, J.; Lazarevic, V.; Lee, S.M.; Levine, A.; Liu, H.; Masuda, S.; Maueel Y., M.; Ogiwara, A.; Ogiwara, A.; Oudega, B.; Park, S.H.; Parro, V.; Pohl, T.M.; Portetelle Rieger, M.; Rivolta, C.; Rocha, E.; Roche, B.; Rose, M.; Sadaie, Y.; Sato, T.; Scanlon, A;Authors: Schleich, S.; Schroeter, R.; Scoffone, F.; Sekiguchi, J.; Sekowska, A.; Seror akeuchi, M.; Tamakoshi, A.; Tanaka, T.; Terpstra, P.; Tognoni, A.; Tosato, V.; Uchiyama, A;Authors: Yoshikawa, H.F.; Zumstein, E.; Yamane, K.; Yasumoto, K.; Yata, K.; Yoshida, K.; A;Authors: Yoshikawa, H.F.; Zumstein, E.; Yoshikawa, H.; Danchin, A. A;Title: The complete genome sequence of the Gram-positive bacterium Bacillus subtilis. A;Accession: F69766
                                             A;Reference number: A64300; MUID:96337999
A;Accession: F64385
A;Status: preliminary; nucleic acid sequen
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A; Molecule type: DNA
A; Residues: 1-580 <B
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A;Experimental source: strain:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R;Kunst, F.; Ogasawara, N.; Moszer, I.; Albertini, A. M.; Alloni, G.; Azevedo, V.; Berter C.; Bron, S.; Brouillet, S.; Bruschi, C.V.; Caldwell, B.; Capuano, V.; Carter, N.M.; Cha.; Ehrlich, S.D.; Emmerson, P.T.; Entian, K.D.; Errington, J.; Fabret, C.; Ferrari, E. Nature 390, 249-256, 1997
                                                                                                                                                                                                                                                                                                                                                                              hypothetical protein MJ0686 - Methanococcus jannaschii C;Species: Methanococcus jannaschii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DЬ
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Best Local S
Matches 75
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SQAALEIYLKSGMYGRHKEKIRDSYKERSLRLHQAIRTHRQLGSGRF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SESVFKVYETSGTESLRKLKAHETFK-RVLKLREKI----SIAEGSF 322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SSRIIKDDVPNYPLASSKMRFKAFRVSKSHSSKVKNFIFYVKDLRVLYDKLSVSIDSDID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ERDKQ-----ELVRLAEAYDVYLVEDDY------LGDLEENKKAD-----PLYAYDL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNIKTMKEIKVSVYSLGYEIDLEVLFEDMNGMEYAYSMGTLKFKGWADLIWSNPNYIPNI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TLGIPAIGVKRTEE--GLDIAKVERLFQTESIKFFYTMPRFHNP------LGCSLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SKSGQPGP--IDFATSAPDP-----DVFPYLDFQHCINKAIDTYKNDLFIYGTPKGLPSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SKRAEPGELVLDFAELARDPSSTRLDLTNYVD-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IRVLRKLLATQQVFADERHIFITSGVQQALSLLCAMPFPNGKEKIAIEQPGYHLMVEQLE.
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   <BUL>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 109;
Pred. No. 2;
                                                      sequence not shown;
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                                                         translation
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                                                                                                                                          jannaschi
                                                                                                                                                                     Woese,
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dek, A.
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A;Cross-references: GB:U67515; GB:L77117; C;Genetics: A;Map position: REV615409-613667
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Best Local S
Matches 56
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567
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                                                                                                                                                                                                                      376
                                                                                                           454 IAYYKLEDHHIFPKGFLRNKGISNEYIDSVLNKTPILDETNKKISKKSPSK-----YVK
                                                                                                                                                               GAYSL----
                        REKISIAEGSFQNFVEKI
                                                                                DLRVLYDKLSVSIDSDID----
                                                                                                                                                                                         SVYSLGYEIDLEVLFEDMNGMEYAYSMGTLKFKGWADLIWSNPN---YIPNISSRIIKDD 228
                                                                                                                                                                                                                      SERYSGST-
                                                                                                                                                                                                                                                SKRYAGDTILGVRVLFPSYSQSSAMIMPPFKIPFYSGESGNQFLGKGLIDNIKTMKEIKV 171
REKL-----ILEKI
                                                      EMIEIQKNKGLSEDEAVNKVKEILKGHFINEEMFEILRNT-DDSLSKDEIEENFNRFIEL
                                                                                                                                                                                                                                                                           Similarity 21.7
                                                                                                                                                                                                                                                                                        6.3%;
                                                                                                                                                                  ----KKVKSSGSSKYKGVFNLIFKNKPMDFYKP-----DN
                                                                                                                                                                                                                       -ESKMMKDFKEVSQWIENNNKI--PEVVENLKI--EIQY 417
                                                                                                                                                                                                                                                                            38;
                                                                                                                                                                                                                                                                                       Score 108;
Pred. No. 3.
                                                                                                                                                                                                                                                                            Mismatches
                                                                               -SESVFKVYETSGTESLRKLKAHETFKRVLKL 311
                                                                                                                                                                                                                                                                                                                                                                         NID:g1591390; PIDN:AAB98681.1; PID:g1499499
                                                                                                                                                                                                                                                                                        .4;
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                                                                                                                                     -RVSKSHSSKVKNFIFYVK 262
                                                                                                                                                                                                                                                                                                      Length 580
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                                                                                                                                                                  453
                                                      566
                                                                                                             507
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R;Bult, C.J.; White, O.; Olsen, G.J.; Zhou, L.; Fleischmann, R.D.; Sutton, G.G.; Blak Reich, C.I.; Overbeek, R.; Kirkness, E.F.; Weinstock, K.G.; Merrick, J.M.; Glodek, rson, J.D.; Sadow, P.W.; Hanna, M.C.; Cotton, M.D.; Roberts, K.M.; Hurst, M.A. Science 273, 1058-1073, 1996
A;Authors: Kaine, B.P.; Borodovsky, M.; Klenk, H.P.; Fraser, C.M.; Smith, H.O.; Woese A;Title: Complete genome sequence of the methanogenic archaeon, Methanococcus jannasc A;Reference number: A64300; MUID:96337999
A;Accession: G64327 H+-transporting ATP synthase (EC 3.6.1.34) chain I - Methanococcus jannaschii C;Specias: Methanococcus jannaschii C;Specias: Methanococcus jannaschii C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 21-Jul-2000 C;Accession: G64327 밁 Q 맑 Ş Ъ Qy ₽ Q A; Map position: REV214151-212064 A; Start codon: GTG A;Status: preliminary; nucleic acid sequence A;Molecule type: DNA A;Residues: 1-695 <BUL> A;Cross-references: GB:U67478; GB:L77117; NID:g1590958; PIDN:AAB98208.1; PID:g1590960 Query Match Best Local S Matches 84 189 211 162 127 77 Local Similarity 23.1 nes 84; Conservative 32 KVADGYIGIFSGSEFEKDKKIRVPIVFVTLKEKLENV----LSEIRKFEFERYDI----WSNPNYIPNIS-SRIIKDDVPNYPLASSKMRFKAFRVSKSHSSKVKNFIFYVKDLRVLYD NKKSKLLQLKEQISYLKGLEFDLKYL----GSGEYVFIGAGSVPKEKLGELK----AELD MFSSVSQKETSIKDILNPKPVEKKKVSFNSYQEVIDYAEKVLNEISKEVDGPAERLSELD GIVELCDLSEKLEDLEWKTLLSPSSSAD-YVRN--VTSLMIK-----AG-----RILD 76 GIVKPEDMVVDLGINNWSVLLTPSARLQAYVKNSVVAPAVVKSESKRYAGDTILGVRVL- 126 NIKT-MKEIKVSV-YSLGYEIDLEVLFEDMNGMEYAY------FPSYSQSSAMI----hydrolase 6.2%; -MPPFKIPFYSGESGNOFLGKGL-----Score 106.5; I Pred. No. 5.7; 41; Mismatches not DB 108; shown; 2; Length Indels translation SMGTLKFKGWADLI 210 125; ----ID 161 not Gaps 188 136 269 239 19;

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N-acetylmuramoyl-L-alanine amidase modifier precurs N.Alternate names: major autolysin lytc modifier ly C:Species: Bacillus subtilis C:Ste: 05-Jun-1992 #sequence_revision 10-Feb-1995 C:Accession: A41322; C47679; D69654 R:Kuroda, A.; Sekiguchi, J. J. Bacteriol. 173, 7304-7312, 1991 A:Title: Molecular cloning and sequencing of a major A:Reference number: A41322; MUID:92041629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Title: DNA Sequence of both chromosomes of the cholera pat
A;Reference number: A82035; MUID:20406833
A;Accession: C82500
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-1181 <HEI>
A;Cross-references: GB:AE004353; GB:AE003853; NID:g9657488;
A;Experimental source: serogroup O1; strain N16961; biotype
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Nature 406, 477-483, 2000
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C:Accession: C82500
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Best Local S
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                                                                                                                                                                                                                                                                                               DLRVLYDKLSVSIDSDIDSESVFKVYETSGT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                    EIKVSVYSLGYEIDLEVLFE------DMNGMEYAYSMGTLKFKGWADLIWSNP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NKDVALADFEAFFAPNGTLDNFYNQQLKMFIDE-NISVASDDSAQSIIRKEVLDQIKQAQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IVKPED-MVVDLGINNWSVLLTPSARLQAYVKNSVV--APAVVKSESKRYAG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GSKPAYMTEVLASVDELKSYLKSIQDAPDVGMAALDATKARVKLVN-ADPIYTLKRISSG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  --DTILGVRVLF--PS----YSQSSAMIMPPFKIPFYSGESGNQFLGKGLIDNIKTMK 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LPKPLDSMMAKLADESWYVV------KQEAIKHLEVRWTEDVYKTFQSKLAGRYPFNPAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----SDVEGTPSEALSKIESELKAIESERNSLIEKLKALAQKWEKELLAVYELLSIE 292
                                                                                                                                                                                                                                                                                                                                                                           -----NYIP---NISSRIIKDDVPNYPLASSKMRFKAFRVSKSHSSKVKNFIFYVK 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   l Similarity
77; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
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23.3%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 106;
Pred. No. 1
                                                                                                                                      modifier precursor lytB - lytC modifier lytB; probak
                                                                                                                                                                                                                                                                                                                                      ---IQGPWAFFRLLDQGDVVSASQTS---VDFKFIVD
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -AEGSFQN-----FVEKIESEKPEESSP
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                        501
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Nature 390, 249-256, 1997

A;Authors: Foulger, D.; Fritz, C.; Fujita, M.; Fujita, Y.; Fuma, S.; Galizzi, A.; Gal A;Authors: Foulger, D.; Fritz, C.; Fujita, M.; Fujita, Y.; Fuma, S.; Galizzi, A.; Gal icch, J.; Harwood, C.R.; Henaut, A.; Hilbert, H.; Holsappel, S.; Hosono, S.; Hullo, M Koetter, P.; Koningstein, G.; Krogh, S.; Kumano, M.; Kurita, K.; Lapidus, A.; Lardino A;Authors: Lauber, J.; Lazarevic, V.; Lee, S.M.; Levine, A.; Liu, H.; Masuda, S.; Mau y, M.; Ogawa, K.; Ogiwara, A.; Oudega, B.; Park, S.H.; Parro, V.; Pohl, T.M.; Portete Rieger, M.; Rivolta, C.; Rocha, E.; Roche, B.; Rose, M.; Sadaie, Y.; Sato, T.; Scanl A;Authors: Schleich, S.; Schroeter, R.; Scoffone, F.; Sekiguchi, J.; Sekowska, A.; Se akeuchi, M.; Tamakoshi, A.; Tanaka, T.; Terpstra, P.; Tognoni, A.; Tosato, V.; Uchiya akeuchi, M.; Tamakoshi, A.; Tanaka, T.; Terpstra, P.; Tognoni, A.; Tosato, V.; Uchiya T.; Winters, P.; Wipat, A.; Yamanoto, H.; Yamane, K.; Yasumoto, K.; Yata, K.; Yoshida A;Authors: Yoshikawa, H.F.; Zumstein, E.; Yoshikawa, H.; Danchin, A.
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A;Experimental source: strain 168
A;Note: sequence extracted from NCBI backbone (NCBIN:116645, NCBIP:116648)
A;Note: sequence extracted from NCBI backbone (NCBIN:116645, NCBIP:116648)
R;Kunst, F; Ogasawara, N.; Moszer, I.; Albertini, A.M.; Alloni, G.; Azevedo, V.;
C; Bron, S.; Brouillet, S.; Bruschi, C.V.; Caldwell, B.; Capuano, V.; Carter, N.N.
A.; Ehrlich, S.D.; Emmerson, P.T.; Entian, K.D.; Errington, J.; Fabret, C.; Ferran
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C;Keywords: cell wall F;1-25/Domain: signal sequence #status predicted <SIGF;26-705/Product: N-acetylmuramoyl-L-alanine amidase
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A;Experimental source: strain 168
C;Comment: This protein enhances the activity of the N-acetylmuramoyl-L-alanine amida
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A; Residues: 1-705 <LAZ>
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A; Residues: 473-705 < KUR>
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Pred. No. 6.8;
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surface-located membrane protein 1 (lmp1) homolog - Lyme disease spirochete () Species: Borrelia burgdorferi (Lyme disease spirochete) C;Date: 13:Peb-1998 #sequence_revision 13-Feb-1998 #text_change 11-Jan-2000 C;Accession: B70126 R;Fraser, C.M.; Casjens, S.; Huang W.M.; Sutton, G.G.; Clayton, R.; Lathigra, R.; son, D.; Peterson, J.; Kerlavage, A.R.; Quackenbush, J.; Salzberg, S.; Hanson, M.; Bowman, C.; Garland, S.; Fujii, C.; Cotton, M.D.; Horst, K.; Roberts, K.; Hatch, Nature 390, 580-586, 1997
                                                                                                                                                                                                                                   hypothetical protein 2 - Haemophilus ducreyi
C;Speciles: Haemophilus ducreyi
C;Speciles: Haemophilus ducreyi
C;Date: 22-Oct-1999 #sequence_revision 22-Oct-1999 #text_change 22-Oct-1999
C;Accession: T31105
C;Accession: T31105
R;Ward, C.K.; Lumbley, S.R.; Latimer, J.L.; Cope, L.D.; Hansen, E.J.
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A; Authors: Smith, H.O.; Venter, J.C.
A; Title: Genomic sequence of a Lyme disease
A; Reference number: A70100; MUID:98065943
A; Accession: B70126
                                     A;Title: Haemophilus ducreyi secretes a filamentous hemagglutinin-like protein. A;Reference number: 220984; MUID:99030326 A;Accession: T31105 A;Accession: T31105 A;Status: preliminary; translated from GB/EMBL/DDBJ
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A; Molecule type:
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Pred. No. 16;
44; Mismatches
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A; Cross-references: EMBL
C; Genetics:
A; Gene: lspA2
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                                                                                                                                                                         KAFRVSKSHSSKVKNFIFYVKDLRVLYDKLSVSI------DSDIDSESVFKVY-- 288
                                                                                                                                                                                                                                                                                                                                                                                         ----KIPFYSGESG--NQFLGKGLIDNIK-----TMKEIKVSVYSLGYE 179
                                                                                                                                       EDFKKDKGASKML------DLYPNTDKEKAKIFAGIIRNGNDTISDVESEDFKKKKYSK 1336
                                                                                                                                                                                                              YYSGSSSNYINPVSYLAALGNANNSSNPHYLNTALKHILGNGWQDDLKKQENIKVLKQKW 1284
                                                                  FQNGEWAKNDTGTDSYDSTKASEKYKKVENVDHKENIDEHKLNIGKHEITVPGVSFENLN 1396
                                                                                                                                                                                                                                                                                                                 I--DLEVLFE------DMNGMEYAYSMGTLKFKGWADLI------
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19.1%;
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xylulose kinase xylB - Bacillus subtilis C;Species: Bacillus subtilis C;Date: 05-Dec-1997 #sequence_revision 05-Dec-1997 #text_change 20-Jun-2000 C; Accession:

R; Kunst, F; Ogasawara, N.; Moszer, I; Albertini, A.M.; Alloni, G.; Azevedo, V.; Ber C.; Bron, S.; Brouillet, S.; Bruschi, C.V.; Caldwell, B.; Capuano, V.; Carter, N.M.; A.; Ehrlich, S.D.; Emmerson, P.T.; Entian, K.D.; Errington, J.; Fabret, C.; Ferrari, Nature 390, 249-256, 1997

A; Authors: Foulger, D.; Fritz, C.; Fujita, M.; Fujita, Y.; Fuma, S.; Galizzi, A.; Galiech, J.; Harwood, C.R.; Henaut, A.; Hilbert, H.; Holsappel, S.; Hosono, S.; Hullo, M.; Koetter, P.; Koningstein, G.; Krogh, S.; Kumano, M.; Kurita, K.; Lapidus, A.; Lardino A; Authors: Lauber, J.; Lazarevic, V.; Lee, S.M.; Levine, A.; Liu, H.; Masuda, S.; Mau y, M.; Ogawa, K.; Ogiwara, A.; Oudega, B.; Park, S.H.; Parro, V.; Pohl, T.M.; Portete Rieger, M.; Rivolta, C.; Rocha, E.; Roche, B.; Rose, M.; Sadaie, Y.; Sato, T.; Scanl A; Authors: Schleich, S.; Schroeter, R.; Scoffone, F.; Sekiguchi, J.; Sekowska, A.; Se akeuchi, M.; Tamakoshi, A.; Tanaka, T.; Terpstra, P.; Tognoni, A.; Tosato, V.; Uchlya T.; Winters, P.; Wipat, A.; Yamamoto, H.; Yamanoto, K.; Yasumoto, K.; Yasunoto, K.; Yoshida A; Authors: Yoshikawa, H.F.; Zumstein, E.; Yoshikawa, H.; Danchin, A. A.; Title: The complete genome sequence of the Gram-positive bacterium Bacillus subtili A; Accession: D69735
A; Accession: D69735
A; Status: preliminary; nucleic acid sequence not shown; translation not shown A;Cross-references: GB:Z99113; A;Experimental source: strain 1 C;Genetics: A;Gene: xylB A; Residues: 1-499 < KUN> A; Molecule type: DNA ; GB:AL009126; NID:g2634090; PIDN:CAB13645:1; PID:g26341 168

C; Superfamily: xylulokinase

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RESULT 15
S14949
S14949
dnak-type molecular chaperone hsc-1 - tomato
N;Alternate names: heat shock cognate protein 70
C;Species: Lycopersicon esculentum (tomato)
C;Date: 13-Jan-1995 #sequence_revision 13-Jan-1995 #text_cha
C;Accession: S14949
R;Lin, T.Y.; Duck, N.B.; Winter, J.; Folk, W.R.
Plant Mol. Biol. 16, 475-478, 1991
A;Title: Sequences of two hsc 70 cDNAs from Lycopersicon esc
A;Reference number: S14949; MUID:91370894
A;Accession: S14949; MUID:91370894
                                                                                                                                                                                                                                                                                                                                              A;Cross-references: EMBL:X54029; NID:g19255; PIDN:CAA37970.1; C;GenetLcs:
A;Genet hsc-1
C;Function:
A;Description: involved in protein folding and assembling/disaC;Superfamily: heat shock protein 70
C;Keywords: ATP; molecular chaperone
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A; Residues: 1-650 <LIN>
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nes 68; Conserv
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                                                                                                                                                                                      61 QVALNPINTVFDAKRLIGRRFSDAS---VQEDMKL-----WPFKVIPGPGDK-----
                                                                                                                                                                                                                      43 ELARDPSSTRLDLTNYVDYVYSGASGIVKPEDMVVDLGINNWSVLLTPSARLQAYVKNSV 102
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                                                                                                                                                     VAPAVV---KSESKRYAGDTILGVRVLFPSYSQSSAMIMPPFK------
EYAYSMGTLK------FKGWADLIWSNPNYIPNISSRIIKDDVPNYPLASSKM
                                                                                 IPFYSGESGNOFL-GKGLIDNIKTMKEI-KVSVYSLGYEIDLE-----VLFEDMNGM 192
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                                                VPAYFNDSQRQATKDAGVISGLNVMRIINEPTAAAIAYGLDKKATSAGEKNVLIFDLGGG 209
                                                                                                                     --PMIVVTYKGEEKEFAAEEI----
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                                                                                                                                                                                                                                                                             Score 103;
Pred. No. 9
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Pred. No. 5
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                             S 337
                                                                                               SDIDSESVFKVYETSGTESLRKLKAHETFKRVLKLREKISIAEGSFQNFVEKIESEKPEE
                                                                                                                                  RTACERAKRTLSSTAQTTIEIDSLYEGVDFYSTITRARFEELNMDLFRKCMEPVEKCLRD 329
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Search completed: March 19, 2002, 23:42:09 Job time: 2315 sec

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Sequence:
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Copyright (c) 1993 - 2000 Compugen Ltd.
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B. burgdorferi ant	AAY19935	20		6.1	104.5	11
WO9904265 Seq ID N	AAY07114	20		6.2	107	10
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Bacillus subtilis	AAR34719	14		6.3	109	00
A. pleuropneumonia	AAW73896	20		6.4	110	7
A. pleuropneumonia	AAW81355	20		6.4	110	Ø
Treponema pallidum	AAW22133	18		7.3	125.5	u
43 kD endoflagellu	AAR33279	14		18.9	324.5	4
B. burgdorferi ant	AAY20147	20		90.2	1551	ω
B. burgdorferi ant	AAY20146	20		95.7	1645	N
P37/FlaA protein a	AAY28460	20		100.0	1719	ь
Description	ID	BB	Match Length DB	Query	Score	esult No.

WPI; 1999-430399/36.

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Johnson BJB;

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03-SEP-1997;
20-JUN-1997;
22-JUL-1997;
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                                                          30-DEC-1998
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Borrelia burgdorferi
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97US-0057483.
97US-0050359.
97US-0053344.
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Best Local Similarity
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                                                                                   B. burgdorferi antigenic protein, t07A.aa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               New isolated Borrelia burgdorferi nucleic acids products for the diagnosis, prevention and treacaused by Borrelia, particularly Lyme disease
                       WO9859071-A1
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20-JUN-1997;
22-JUL-1997;
22-JUL-1997;
Endoflagellum; sheath protein; T. hyodysenteriae; core; antibody;
                                         16-JUL-1993
                                                             AAR33279;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 This sequence represents a Borrelia burgdorferi (Bb) protein of the invention, which is suitable for use in a vaccine. The Bb polypeptides can be used in vaccines for eliciting protective antibodies to members the Borrelia genus, particularly for the use against Lyme disease in humans and animals. They can be used for preventing or attenuating an infection caused by a member of the Borrelia genus. The products can albe used for detection of members of the Borrelia genus.
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                                                                                                                                                                                                                                                                                                                                                                             2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SM
                                                                                320
                                                                                                                                                                                                                                                                                                                                                                           Score 1551; DB 20;
Pred. No. 2.5e-145;
2: Mismatches 6;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lathigra
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                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                 146
                                                                                                                                                                                                                                                                                                                                                         86
                                                                                                                                                                                           326
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                                                                                                                                                                                                                                                                           Query
Best I
                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                   This sequence represents the endoflagellum sheath protein of T. hyodysenteriae. The endoflagellum consists of at least four proteins, this protien forms the sheath of the flagellum and three proteins, of molecular weights 37, 34 and 32 kD, make up its core. Antibodies raised against the sheath protein have been shown to be bacteriacidal for T. hyodysenteriae. The 43 kD sheath protein can be used in the production of a vaccine against infections such as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  orally or intranasally
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25-SEP-1991;
24-JUL-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              31-MAR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EP534526-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Treponema
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 bacteriacide;
                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                           swine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Treponema
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Vaccine to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Koopman MBH,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (DUIN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14-SEP-1992;
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                                                                                                           187
 277
                     307
                                                                                      164
                                                                                                                                 104
                                            223
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                                                                                                                                                      129
                                                                                                                                                                           44
                                                                                                                                                                                                69
                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                       Match
                                                                                                                                            SYSOSS-AMIMPPFKIPFYSGESGNOFL-GKGLIDNIKTMKEIKVSVYSLGYEIDLEVLF
                                                                                                                                                                                                                                          LFFLLSTVLFAQETDGLAEGSKRAEPGELVLDFAELARDPSSTRLDLTNYVDYVYSGASG
--arireqaelrd
                    RVLKLREKISIAE 319
                                         yrtkdtkggdfityvkdvtleydvvvvdfeediddeatwqllk---tendrk-qales--
                                                       SKSHSSKVKNFIFYVKDLRVLYDKLSVSIDSDIDSESVFKVYETSGTESLRKLKAHETFK
                                                                                      qnefgelksypmgtvyfngwrqvrwenreylpnvrdsvlvre-plyprmipsvkldslgf
                                                                                                 EDMNGMEYAYSMGTLKFKGWADLIWSNPNYIPNISSRIIKDDVPNYPLASSKMFKKAFRV
                                                                                                                                laawnsyalvktvyelemyggadgtkytegkgvidnvgeiksisswvygrnylisyfvnl
                                                                                                                                                                           tnevvpvaenlyndnwvvwlnesarltenrrnsyvtnvdskgnngaweagkvlgvrvhfp
                                                                                                                                                                                                IVKPEDMVVDLGINNWSVLLTPSARLQAYVKNSVVAPAVVKSESKRYAGDTILGVRVLFP
                                                                                                                                                                                                                    lfvvltsifiaasaygltnst-----lidfa-----ltgnadnlqagegd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1993-102665/13
                                                                                                                                                                                                                                                                                                                                           dysentery.
                                                                                                                                                                                                                                                                                                                                                                                                                                             2
                                                                                                                                                                                                                                                                 ; 68
                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAQ38583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DUPHAR
                                                                                                                                                                                                                                                                                                                                                                                                                                            Page 21-22; 34pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          hyodysenteriae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hyodysenteriae endo-flagellum sheath pro
                                                                                                                                                                                                                                                                                                                      320
                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 43 kD; vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Kusters
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INI
                                                                                                                                                                                                                                                                                                                      ΑĄ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        91EP-0202478
92EP-0202273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        92EP-0202796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note= "Signal peptide"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RES
 287
                                                                                                                                                                                                                                                                            18.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JG;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ВV
                                                                                                                                                                                                                                                                                     .98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        "Mature protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                            English.
                                                                                                                                                                                                                                                                 63;
                                                                                                                                                                                                                                                                Score 324.5; DB 14;
Pred. No. 1e-23;
3; Mismatches 130;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 infection; swine dysentery.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       comprises
                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            applied
                                                                                                                                                                                                                                                                                       320;
                                                                                                                                                                                                                                                                  31;
                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                  163
                                                                                                                                                                                                128
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                                                          Matches
                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                         New isolated Treponema pallidum detection and induction of immur pathogenic Spirochaetales
                                                                                                                             Sequence
                                                                                                                                                    The outer membrane in the supernatant was subjected to SDS_PAGE obtain the rare OMP. The recombinant expression of the rare OMP can be used for diagnostic tests to detect syphilis and for development of host immunity during syphilis.
                                                                                                                                                                                                                                                                   tissue debris. Treponemes were obtained from the uppermost zone gradient after two high speed centrifugations involving a density gradient separation medium. R18 octyl-decyl Rhodamine chloride was added to the treponemal suspension which was incubated at room temperature for
                                                                                                                                                                                                                                                                                                                        subspecies pallidum is encoded by a 765 bp sequence (TROMP2 gene). This is a precursor TROMP2 protein of 242 amino acids. Treponemes were extracted from infected rabbit testicles and the suspension was subjected to two low speed centrifugations to remove the
                                                                                                                                                                                                                                                                                                                                                                                   This rare outer membrane protein (OMP) of species Treponema pallidum
                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Blanco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cleavage-site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAW22133 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (SLOK )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      31-JUL-1997.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO9727215-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Treponema pallidum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rare; outer membrane protein; Treponema pallidum; Immune response; Syphilis; TROMP-2; precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12-JAN-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW22133;
                                                                                                                                                                                                             Treponemal protoplasmic cylinders were removed by centrifugation
                                                                                                                                                                                                                          in ice cold sodium citrate buffer, incubated with occasional vortexing to release the outer membrane from the inner membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          23-JAN-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              23-JAN-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Peptide
  21
                             48
                                                                    Local Similarity
                                                                                                                                                                                                                                                      minutes and then centrifuged. The treponomal pellet was resuspended
plaaqrskvnyqayfiddfdgas-----edqgl-awraagskfitkgfpilkyfeg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1997-393614/36.
DB; AAT76579.
                           PSSTRLDLINYVDYV---YSGASGIVKPEDMVVDLGINNW----SVLLTPSARLQAYVKN 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     UNIV CALIFORNIA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SLOAN KETTERING INST CANCER RES
                                                                                                                                                                                                                                                                                                                                                                                                               Fig 11; 77pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            pallidum
                                                                                                                             242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lovitt MA,
                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              96US-0599480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97WO-US01302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note= "putative signal peptide"
22...24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note= "cleaves at the C-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            rare outer membrane protein (TROMP-2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Protein;
                                                                   7.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "putative mature protein'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Miller
                                                        31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        immune
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               242
                                                                      Score 125.5; DB 18; Pred. No. 0.00036;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      outer membrane protein - us
ne response in an animal to
                                                       Mismatches
                                                        104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Spirochaetales;
                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       side of Ala
                                                                                 Length
                                                                                                                                                                    rare OMP's
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       used
                                                                                    242;
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RESULT
AAW81355
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QΥ
                                            invention also provides a subunit vaccine for protecting an animal against infection of A. pleuropneumoniae, the vaccine contains pure Apx toxin and a pharmacologically allowable carrier. The pure ApxIV toxin c be used for the diagnosis based on the presence of an antibody against ApxIV for distinguishing A. pleuropneumoniae infection from A. suis. N.B. This sequence was indexed from EP-875574, which is the first majo
                                                                                                                                         This sequence represents the ApXIV toxin serotype 1 isolated from Actinobacillus pleuropneumoniae strain 4074 (serotype 1 reference strain). The invention relates to an attenuated live Actinobacillus pleuropneumoniae microorganism producing no functional ApXIV toxin. The
                                                                                                                                                                                                                                                                  Attenuated live Actinobacillus pleuropneumoniae - and a nucleotide sequence having promoter controlling expression of ApxIV gene, a sub-unit vaccine containing pure ApxIV toxin, and an attenuated lives.
Sequence
                             country
                                                                                                                                                                                                                         Example 1;
                                                                                                                                                                                                                                                                                                                                     N-PSDB;
                                                                                                                                                                                                                                                                                                                                                    WPI; 1999-027956/03.
                                                                                                                                                                                                                                                                                                                                                                                 Frey J,
                                                                                                                                                                                                                                                                                                                                                                                                                                               10-APR-1997;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EP875574-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Actinobacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ApxIV toxin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A. pleuropneumoniae ApxIV toxin serotype 1 protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-APR-1999
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                                                                                                                                                                                                                                                                                                                                                                                                                (ALKU ) AKZO NOBEL NV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      pleuropneumoniae infection; diagnosis.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GKGLIDNIKTMKEIKVSVYSLGYEIDLEVLFEDMNGMEYAYSMGTLKFKGWADLIWSNPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mpqavrmagswqgkdkearfigveckfnrqgnnwldliptkggsdyeiplrgvvsg----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SVVAPAVVKSESKRYAGDTILGVRVLFPSYSQSSAMIMP-----PFKIPFYSGESGNQFL
                               equivalent
                                                                                                                                                                                                                                                                                                                                     AAV68471
                                                                                                                                                                                                                                                                                                                                                                                 Segers RPAM;
                                                                                                                                                                                                                       Page 13-20; 56pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RTX toxin; attenuated microorganism; subunit vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first
                                                                                                                                                                                                                                                                                                                                                                                                                                               97EP-0201032.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98EP-0201115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pleuropneumoniae
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                                                                                      The pure ApxIV toxin can
                                                                                                                                                                                                                                                                        attenuated live
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -vffdqfkala
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                                               major
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Query Match
Best Local Similarity
Matches 68; Conserv

6.4%; ilarity 21.5%; Conservative

51;

Score 110; DB Pred. No. 0.25 51; Mismatches

DB 20;).25; nes †114;

Length 1657; Indels

84;

Gaps

17;

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RESULT
AAW73896
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This sequence represents the ApXIV toxin serotype 1 isolated from Actinobacillus pleuropneumoniae strain 4074 (serotype 1 reference strain). The invention relates to an attenuated live Actinobacillus pleuropneumoniae microorganism producing no functional ApXIV toxin. The invention also provides a subunit vaccine for protecting an animal against infection of A. pleuropneumoniae, the vaccine contains pure ApXIV toxin and a pharmacologically allowable carrier. The pure ApXIV toxin can be used for the diagnosis based on the presence of an antibody against ApXIV for distinguishing A. pleuropneumoniae infection from A. suis.

N.B. This sequence was indexed from EP-875574, which is the first major
                                                                                                                                                                  Example 8; Page 37-43; 56pp;
                                                                                                                                                                                                        Attenuated live Actinobacillus pleuropneumoniae - and a nucleotide sequence having promoter controlling expression of ApxIV gene, a sub-unit vaccine containing pure ApxIV toxin, and an attenuated live
                                                                                                                                                                                                                                                                                                                     Frey
                                                                                                                                                                                                                                                                                                                                                                                                          08-APR-1998;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Actinobacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ApxIV toxin; RTX toxin; attenua A. pleuropneumoniae infection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A. pleuropneumoniae ApxIV toxin serotype 1 protein sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAW73896;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAW73896 standard; Protein; 1805
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                                                                                                                                                                                                 vaccine
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DB; AAV68473.
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                                                                                                                                                                                                                                                                                                                   Segers RPAM;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          attenuated microorganism;
                                                                                                                                                                  English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            diagnosis
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Best Local S
Matches 68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1187
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The Bacillus subtilis chromosomal DNA region operon which encodes the multienzyme complex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1062
                                                         pharmaceutical prods
                                                                  Multi-enzyme complex surfactin synthetase DNA - is isolated Bacillus subtilis, and used for prodn. of surfactin for use
                                                                                                        N-PSDB; AAQ40706.
                                                                                                                 WPI; 1993-145447/18
                                                                                                                                       Rodriguez F;
                                                                                                                                                   Carrera P,
                                                                                                                                                                                                09-OCT-1991;
02-SEP-1992;
                                                                                                                                                                                                                                 03-OCT-1992;
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                                                                                                                                                                                                                                                                                                                         Mulienzyme complex;
                                                                                                                                                                                                                                                                                                                                                Bacillus subtilis srfA operon
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68; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                    standard;
                                   Page 50-51;
                                                                                                                                                   Cosmina
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92IT-0MI2044
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                                                                                                                                                   FERRA
                                 English.
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Pred. No. 0.29;
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synthetase

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RESULT
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Best Local S
Matches 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (MCSS). Analysis of the sequence showed four regions potentially coding for proteins, a zone upstream of the first ORF contg. the srfA operon promoter and a presumed terminator positioned downstream of the stop codon of the fourth ORF. Chromosomal DNA downstream of the ORF4 stop codon was also sequenced, sharing four regions (ORF5-8) potentially coding for different prods. ORF6 and ORF7 are contiguous and are potentially transcribed in the opposite direction to srfA from a single promoter situated between ORF7 and ORF8. ORF8 is transcribed in the same direction as the sfrA operon. A further two potential coding sequences were identified in the region immediate downstream of ORF4, namely ORFx and ORFy.
                                                                                                                                                                                                                                                                                                                                                                         AAW81168 standard; Protein; 947
                                                                                        18-APR-1997;
                                                                                                                    17-APR-1998;
                                                                                                                                                  29-OCT-1998
                                                                                                                                                                              WO9848015-A1
                                                                                                                                                                                                          Homo sapiens.
                                                                                                                                                                                                                                        testis specific
                                                                                                                                                                                                                                                                                  Transcriptional regulatory factor
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                                                         (CHUG-) CHUGAI
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mes 75; Conserv
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1998-583658/49
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sshvi----ylksfskmmfpglrvgaavlpealtdtfya----ykkln-didcsmi
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                               MH;
                                                                                                                                                                                                                                                      transcriptional regulatory
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                                                           RES
                                                                                        97JP-0116402
                                                                                                                    98WO-JP01782
                                                                                                                                                                                                                                        bromodomain;
                                                           INST MOLECULAR MEDICINE INC
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Pred. No. 0.041;
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                                                                                                                                                                                                                                                       RING3; TSB;
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Best Local Similarity
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                                             Homo sapiens
                                                                              prostate cancer.
                                                                                             Cancer associated breast cancer; co.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim
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                                                                                                                                                                                                                                                                                                                                                               ----ETFKRVLKLREKIS-----IAEGSFQNFVEKIESEKPEESSPK
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 lrhcseilkemlakkhfsyawpfynpvdvnalglhnyydvvknpmdlgtikekmdngeyk 332
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGDTILGVRVLFPSYSQSSAMIMPPFK-----IPFYSGESGNQFLGKGLIDNIKTMKE 168
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lon cancer; gastric cancer; renal cancer;
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18.5%;
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17-JUL-1997;
10-OCT-1997;
10-OCT-1997;
10-OCT-1997;
11-OCT-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 characterised by the expression of various cancer associated antigens. The invention provides nucleic acid sequences and encoded polypeptides which are cancer associated antigen precursors expressed in human breast cancer, renal cancer, colon cancer, gastric cancer, prostate cancer and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The invention relates to a method for diagnosing a disorder characterised by expression of a human cancer associated antigen precursor coded for by a nucleic acid molecule (NAM). The method comprises: (a) contacting a biological sample isolated from a subject with an agent that specifically binds to the NAM, an expression product or a fragment of an expression product complexed with an HLA molecule; and (b) determining the interaction between the agent and the NAM or the expression product as a determination of the disorder. The products and methods can be used in the capture of the conditions of the disorder. The products and methods can be used in the capture of the conditions of the disorder.
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                                                             KSHSSKVKNFIFYVKDLRVLYDKLSVSIDSDIDSESVFKVYETSGTESLRKLKAH-----
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20-JUN-1997;
22-JUL-1997;
22-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This sequence represents a Borrella burgdorferi (Bb) protein of the invention, which is suitable for use in a vaccine. The Bb polypeptic can be used in vaccines for eliciting protective antibodies to membe the Borrella genus, particularly for the use against Lyme disease in humans and animals. They can be used for preventing or attenuating infection caused by a member of the Borrella genus. The products can be used for detection of member of the Borrella genus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New isolated Borrelia burgdorferi nucleic acids - used products for the diagnosis, prevention and treatment of caused by Borrelia, particularly Lyme disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B. burgdorferi
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                                                  KVKNFIFYVKDLRVLYDKLSVSIDSDIDSESVFKVYETS-----GTESLRKL------
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97US-0053344.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lyme disease; infection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1087
                                                                                                                                                                                                                                                                                                                                                                                                        Score 104.5; DE Pred. No. 0.46; 14; Mismatches 1
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20-JUN-1997;
22-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           (HUMA-)
                                                                                                                                                                                                                     This sequence represents a Borrelia burgdorferi (Bb) protein of the invention, which is suitable for use in a vaccine. The Bb polypeptides can be used in vaccines for eliciting protective antibodies to members the Borrelia genus, particularly for the use against Lyme disease in humans and animals. They can be used for preventing or attenuating an infection caused by a member of the Borrelia genus. The products can albe used for detection of members of the Borrelia genus.
                                                                                                                                                                                                                                                                                                                                                                                                                                    Choi
                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                           New isolated Borrelia burgdorferi nucleic acids - used to develop products for the diagnosis, prevention and treatment of diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO9859071-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Borrelia burgdorferi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Antigenic protein; vaccine; Lyme disease;
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            193
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                                     97
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                                                                                                           98 VKNSVVAPAVVKSESKRYAGDTILGVRVLFPSYSQSSAMIM-------PPFKIPFY 146
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                                                           SGESGNOFLG -- KGLIDNIKT---
        EYAYSMGTLKFKGWADLIWSNPNYIPNISSRIIKDDVPNYPLASSKMRFKAFRVSKSHSS 252
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                                 qrdsanqildkikgq-dntktnvnenfdiafnnryikdstitenysdrnddvgiededis 155
                                                                                   vknsvid----rnykkays----vakllqdkypqnediamltntlaeiansspfeskdl
                                                                                                                                    l Similarity
68; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                 AAX61631.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDIMMUNE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                       Page 124-125; 275pp; English.
                                                                                                                                                                                                                                                                                                                                               Borrelia, particularly Lyme disease
                                                                                                                                                                                                                                                                                                                                                                                                                                    Erwin
                                                                                                                                                                                                  1119
                                                                                                                                    Conservative
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97US-0050359.
97US-0053344.
97US-0053377.
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                                                                                                                                               6.1%;
21.7%;
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                                                                                                                                               Score 104.5; D
Pred. No. 0.48;
                                                         -----MKEIKVSVYSLGY-EIDLEVLFEDMNGM 192
                                                                                                                                    Mismatches
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                                                                                                          in vaccination. The nucleic acids (I) may be used to produce the S. epidermidis polypeptides (II) via the production of vectors containing them which are used to produce hosts cells which express the polypeptides. The polypeptides (II) (and/or nucleic acids) may then be used to vaccinate subjects and to raise antibodies against the bacteria. The polypeptides may also be used to assay for other inhibitors of their activity and therefore identify compounds that may be used for the treatment of S. epidermidis infections, e.g. endocarditis. AAH53971 to AAH55090 represent specifically claimed S. epidermidis genomic DNA polypucleotide sequences from the present invention. AAH55091 to AAH55091 represent oligonucleotide sequences and primers which are used in the exemplification of the present invention.
                           N.B. The present invention specifically claims all the polynucleotide sequences given in the sequence listing of the present specification, however the sequence listing only goes up to SEQ ID NO:4454 so even though sequences are given in the disclosure for SEQ ID NO:4465 to 447 no sequences are present for SEQ ID NO:4455 to 4464.
                                                                                                                                                                                                                                                                                                             AAH52304 to AAH53970 represent nucleic acids (I) encoding polypeptides (II), given in AAG81454 to AAG83120, from Staphylococcus epidermidis. (I) and (II) can have antibacterial activity and therefore can be used
                                                                                                                                                                                                                                                                                                                                                                                Claim 18; Page 621; 2188pp; English
                                                                                                                                                                                                                                                                                                                                                                                                             Nucleic acids encoding useful for vaccinating
                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2001-316495/33.
N-PSDB; AAH53477.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                09-NOV-1999;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              vaccination;
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                                                                                                                                                                                                                                                                                                                                                                                                             polypeptides from Staphylococcus epidermidis, against infections, e.g. endocarditis -
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               infection;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               diagnosis;
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Best Local S
Matches 59
                                                                                                                                                                                                                                                                 29-JUL-1997;
01-APR-1997;
24-JUN-1997;
                                                                                                                                                                                                                               (HUMA-)
                 This sequence represents a Helicobacter pylori GHPO protein of the invention. The polypeptides can be used for preventing or treating Helicobacter infections, and gastroduodenal diseases associated with these infections, including acute, chronic, and atrophic gastritis, and peptic ulcer diseases, e.g. gastric and duodenal ulcers. They can also be used for the production of antibodies. The products can also be used for
                                                                                                                       New isolated Helicobacter polynucleotides - for the diagnosis, prevention and treatment infections and gastrointestinal diseases
                                                                                                                                                                      WPI; 1998-542293/46.
N-PSDB; AAX14481.
                                                                                                                                                                                                       Al-Garawi A,
                                                                                                                                                                                                                                                                                                                                                                                                          GHPO protein;
peptic ulcer
                                                                                                                                                                                                                                                                                                                                                                                                                                             H. pylori GHPO 1097 protein.
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                                                                                                   Claim
                                                                                                                                                                                                                                                                                                                01-APR-1998;
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les 59; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      vhdfaysafgfdaknpsilasknakdvaieifsls--kgynmsgfrvgfavgnkkmigal
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          kkyqthtnagmfgalqdaatyalnhydeflek
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RKLKAHETFKRVLKLREKISIAEGSFONFVEK 328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SHSSKVKNFIFYVKDLRVLYDKLSVSIDSDIDSESVFKVYETSG-----
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                                                                                                  8; Page 1640-1642; 2054pp; English.
                                                                                                                                                                                                                                 MERIEUX
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         and
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                                                                                                                                                                                                                                                                                                                                                                                    pylori
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         diagnosis
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97US-0833457.
97US-0881227.
                                                                                                                                                                                                                                                                                                                                                                                                                     Helicobacter infection;
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Pred. No. 0.15;
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Best Local S
Matches 63
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                  Putative protective antigens against Mycoplasma - used for t detection, prevention or treatment of Mycoplasma infections,
                                              WPI; 1996-433763/43.
N-PSDB; AAT38241.
                                                                                                                                                                                                                                                                                                                   Antigen; vaccine; mycoplasmal diagnosis; antibody.
        hyopneumoniae
                                                                        Doughty SW,
                                                                                                               16-MAR-1995;
                                                                                                                                 15-MAR-1996;
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                                                                                                                                                                                        "codon 254 in the is a stop codon"
                                                                                                                                                                                                                     "codon 101 in
a stop codon"
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Pred. No. 0.23;
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Best Local S
Matches 81
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
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344 kpdkvlgkvavevlrvliakknkasrsevene
                                                                                   284 skpasifkgflapndgmaegaitklklegfdtgkifvtrqdyndkaktfikdgdqnmtiy 343
                                                                                                                                                                                                                                                                 176
                                                                                                                                                                                                                                                                                            155 LGK--GLIDNIKTMKEI-------KYSVYSLGYEIDLEVLFEDMNGMEYAY--SMGTLK 202
                                             261 VKD------LRVLYDKLSVSIDSDIDSE 282
                                                                                                                                                                                                                        203 FKGWADLIWSNPNYIPNISSR------ 228
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                                                                                                                                  -----SHSSKVKNFI-----FY 260
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Search completed: March 19, 2002, 23:30:52 Job time: 4649 sec

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Result
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Match
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AAQ62924	AAA70119	AAI61373	AAQ03568	AAT31530	AAT41852	AAA70236	AAQ25273	AAQ27886	AAN60392	AAD03729	AAA70225	AAN60472	AAZ94422	AAA70117	AAI61372	AA161371	AAZ31996	AAH71575	AAQ22999	AAN81157	AAQ03568	AAH71471	AAF58238	AAF58238	AAZ98287	AAT72882	858	AAF58255	826	AAF58259	582	82	AAF58252
Carbamoy1-phosphat	Plasmodium falcipa	Soybean 318013 reg	Sequence encoding	Human 3' apolipopr	cDNA encoding Plas	Plasmodium falcipa	Sequence encoding	P.falciparum GBP13		P. falciparum telo	Plasmodium falcipa	Sequence encoding	Plasmodium falcipa	um falc	Soybean 240017 reg	Soybean 240017 reg	Human apolipoprote	ä	SERP gene. Plasmo	Malaria-specific g	Sequence encoding	Human cervical can		Oligonucleotide D1	Plasmodium var-7 p		$\overline{}$				Oligonucleotide D1	æ	Oligonucleotide D1

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RESULT AAX89520 08-JAN-1998; mat_peptide CDS Synthetic. Borrelia burgdorferi (INMR) BIOMERIEUX INC 06-JAN-1999; W09935272-A1 sig_peptide P37; FlaA; Lyme disease; antigen; assay; spirochete; ss Nucleic acid sequence encoding the FlaA gene product 19-OCT-1999 (first entry) AAX89520; AAX89520 standard; DNA; 1655 15-JUL-1999 98US-0004395. 99WO-US00196 /*tag= b 539..1495 /*tag= c /-rag- a /product- "p37/FlaA protein antigen" 473..538 Location/Qualifiers 473..1498

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The sequence encodes the recombinant protein antigen P37/FlaA. The P37 protein product can be used in an assay for the detection of Borrel burgdorferi infection, the causative agent of Lyme disease. FlaA is an outer sheath protein of the periplasmic flagella of B. burgdorferi. FlaA is a prominent antigen in the early humoral immune response to Borrelia burgdorferi infection, and significantly suitable for use in improved serologic tests for exposure to Lyme disease spirochetes. The detection of FlaA can augment the set of recombinant molecules that are recognized early in the course of disease and contribute to improved sensitivity of early testing for Lyme disease.
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tggattagcagagggttctaaaagggcagagcctggagaattagtcttagattttgccga
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                                                                                       gaaagctaaaagtattttatttttttattattccactgttctttttgctcaagagactga
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RESULT 2
AAX61843
ID AAX61843 standard; DNA; 1011 BP.
XX
AC AAX61843;

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20-JUN-1997;
22-JUL-1997;
22-JUL-1997;
                                                                                                                                                                                                                                                                                                    products 1
caused by
                                                                                                                                                                                                                              This sequence encodes a Borrelia burgdorferi (Bb) protein of the invention, which is suitable for use in a vaccine. The Bb polypeptides can be used in vaccines for eliciting protective antibodies to members the Borrelia genus, particularly for the use against Lyme disease in humans and animals. They can be used for preventing or attenuating an infection caused by a member of the Borrelia genus. The products can albe used for detection of members of the Borrelia genus.
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                                                                                                                                                                                                                  Sequence 1011
                                                                                                                                                                                                                                                                                       Claim
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                                                                                                                                                                                                                                                                                                  isolated Borrelia burgdorferi nucleic acids - used to develuducts for the diagnosis, prevention and treatment of diseases sed by Borrelia, particularly Lyme disease
                                                                                                                                                ctgttgttaagagtgagtcaaaaaggtacgcaggtgatactattttgggggtaagagttt
                                                                     gagatccaagttcaactagacttgatcttacaaattatgttgattatgtatattcgggcg
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DB; AAY20146.
                                                             gagatccaagttcaactagacttgatcttacaaattatgttgattatgtatattcgggcg
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ilarity 98.5%;
Conservative
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97US-0050359.
97US-0053344.
97US-0053377.
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                                                                                                                                                                                                                317 A; 136 C;
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                                                                                                                                                                             Score 989.6; DB 20;
Pred. No. 2.7e-155;
0; Mismatches 15;
                                                                                                                                                                                                                                                                                      English
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    disease;
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20-JUN-1997;
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      (HUMA-)
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             HUMAN
                                                                                                       burgdorferi
                                                                                                                                                                              standard;
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              GENOME SCI
                           97US-0057483.
97US-0050359.
97US-0053344.
97US-0053377.
                                                                                                                                   antigenic protein
                                                              98WO-US12718
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infection;

t07A.nt BB023 detection;

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                                                   This sequence encodes a Borrelia burgdorferi (Bb) protein of the invention, which is suitable for use in a vaccine. The Bb polypeptides can be used in vaccines for eliciting protective antibodies to members the Borrelia genus, particularly for the use against Lyme disease in humans and animals. They can be used for preventing or attenuating an infection caused by a member of the Borrelia genus. The products can albe used for detection of members of the Borrelia genus.
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This sequence encodes a Borrelia burgdorferi (Bb) protein of the invention, which is suitable for use in a vaccine. The Bb polypeptides can be used in vaccines for eliciting protective antibodies to members the Borrelia genus, particularly for the use against Lyme disease in humans and animals. They can be used for preventing or attenuating an infection caused by a member of the Borrelia genus. The products can all
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The present invention relates to a composition comprising two nuclei acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches)
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different redox potentials. The invention is used for electronic
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and single-nucleotide polymorphisms, e.g. for genotyping,
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                                                                                                                                                                                                                                                                                                                                                                                            y Match 12.4%; Score 207; DB Local Similarity 1.1%; Pred. No. 5e-26; hes 9; Conservative 555; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           single surface -
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                                                                                                                                                                                                                                                                                                                           61 atttaagatatttaagagatgaacaaaatttgaaagataatttagatcttttagtaaaag
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tgtctttaataaaaacaatgcgctttaactatcctggtaagataaaaaagattattc
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                                                                        The present invention relates to a composition comprising two nuclei acids each containing an electron-transfer group (ETM) having different redox potentials. The invention is used for electronic detection of nucleic acids, especially of substitutions (mismatches) and single-nucleotide polymorphisms, e.g. for genotyping,
                                                                                                                                                                                                                                                                                                                                                                    Electron-transfer group;
                                                                                                                                                                                                                                                                                                                                                                                       Oligonucleotide
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                                                                                                                                                                                                                                                                                                                                                                                                                                               AAF58252 standard; DNA;
                                               Sequence
                                                                                                                                                             Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses on
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17-MAR-2000;
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                                                                 monitoring gene
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Similarity
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2000US-0190259
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                                               BP; 4 A; 139
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        12.4%;
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554; Mismatches
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                                               10 G; 7 T;
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219;
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RESULT 13
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                                                              r group;
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                                                                      ETM;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a single surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI;
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17-MAR-2000;
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gcttgcaagagatccaagttcaactagacttgatcttacaaattatgttgattatgtata
                                    tgtctttaataaaaacaatgcgctttaactatcctggtaagataaaaaagattattattc
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2000US-0190259
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No. 7.4e-26;
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RESULT 14
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                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           monitoring
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17-MAR-2000; 2000US-0190259
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Nucleic acids containing electron-transfer group, useful as hybridization assays, e.g. for genotyping, allowing repeat a single surface .
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45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12
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77.1		77.1	٠	77.1	77.1	77.1	77.1	77.1		i	Ë	'n	Ë	'n	<u>.</u>	78.1	78.1	78.1	78.1	78.1	78.1	78.1	æ	œ	78.1	æ	78.1	8	78.1	8	8	8	80.0
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22	20	22	22	22	21	21	21	21	21	21	21	22	22	21	21	22	20	21	22	22	21	21	21	20	21	22	22	22	22	22	22	21	20
AAH72968	AAX13749	AAH69505	AAH70840	AAH72390	AAC70959	AAC70956	AAC70953	AAC23158	AAC70958	AAC70955	AAC70952	AAF25833	AAH14767	AAZ29780	AAA26424	AAH99687	AAV84525	AAA26456	AAF54507	AAF92118	AAA37144	AAA75110	AAC51986	AAX97936	AAC42519	AAF44891	AAF17578	AAH83296	AAH12296	AAH83806	AAH83805	AAZ29782	AAX40071
O.	Enterococcus faeca	Human cervical can	Human cervical can	Human cervical can	Single nucleotide	Single nucleotide	nucleot	Human secreted pro	nucleot	Single nucleotide	Single nucleotide	R. marinus bacteri	Human cDNA sequenc	Sequence upstream	Human secreted pro	Human protein enco		secreted	Probe #60 used in	Human PRO1550 cDNA	Human PRO1550 cDNA	cDNA encoding a hu	Arabidopsis thalia	Human secreted pro	Arabidopsis thalia	Human breast cance	Human breast cance	Human ovarian tumo	Human cDNA clone (Human ovarian tumo	Human ovarian tumo	-	Colon cancer assoc

ALIGNMENTS

RESULT AAX89521 08-JAN-1998; 15-JUL-1999. Synthetic. Borrelia burgdorferi. P37; FlaA; Lyme disease; antigen; assay; PCR primer; Fl construct; ss. PCR primer F1 for amplification of FlaA. 19-OCT-1999 (first entry) AAX89521; AAX89521 standard; DNA; 06-JAN-1999; W09935272-A1. _ 99WO-US00196. 21 ВP

WPI; 1999-430399/36. (INMR) BIOMERIEUX INC. Johnson BJB; 98US-0004395.

Gilmore RD,

Recombinant Fla $\mathbb{A}/\mathbb{P}37$ protein antigen, useful in improved detection of Borrelia burgdorferi

Example 2; Page 11; 34pp; English.

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RESULT
AAX89520
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Best Local S
Matches 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The sequence is a PCR primer denoted F1, used to create the F1 construct, which consists of the entire coding sequence of P37 (AXR89520). The P37 protein product can be used as an assay for the detection of Borrelia burgdorferi infection, the causative agent of Lyme disease. FlaA is a nouter sheath protein of the periplasmic flagella of B. burgdoferi FlaA is a prominent antigen in the early humoral immune response to Borrelia burgdorferi infection, and is significantly suitable for use in improved serologic tests for exposure to Lyme disease spirochetes. The detection of FlaA can augment the set of recombinant molecules that are recognized early in the course of disease and contribute to improved sensitivity of early testing for Lyme disease.
The sequence encodes the recombinant protein antigen P37/FlaA. The P37 protein product can be used in an assay for the detection of Borrelia burgdorferi infection, the causative agent of Lyme disease. FlaA is an outer sheath protein of the periplasmic flagella of B. burgdorferi. FlaA is a prominent antigen in the early humoral immune response to
                                                                                                                                                     Disclosure; Page 28; 34pp; English.
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                                                                                                                                                                                                                  Recombinant Flak/P37 protein antigen, useful in improved detection
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                                                                                                                                                                                                     Borrelia
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atgaaaaggaaagctaaaagt 21
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lyme disease; antigen; assay; spirochete; ss
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                                                                                                                                                                                                                                                                                                                                                     Johnson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sequence encoding the FlaA gene product.
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539..1495
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473..538
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Pred. No.
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RESULT 3
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Best Local :
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25-MAR-1999
01-APR-1999
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16-APR-1999
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20 - WAY - 1999;
21 - WAY - 1999;
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05-MAR-1999;
09-MAR-1999;
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Pred. No. 4
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9903-0137502 9903-0137502 9903-0137724 9903-0138540 9903-0138547 9903-0139453 9903-0139453 9903-0139453 9903-0139453 9903-0139463 9903-0139463 9903-0139463 9903-0139463 9903-0139463 9903-0139463 9903-0139463 9903-0139463 9903-014963 9903-014638	99US-0136392. 99US-0136782. 99US-0137222. 99US-0137528
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RESULT 4
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9908-0130010
9908-0130149
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94.7%;
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Pred. No. 1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ID NO: 63886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 21;
L.4e+02;
nes 1;
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   10-JUN-1999
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17-JUN-1999
18-JUN-1999
19-JUN-1999
19-JUN
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  99US-0138540
99US-0139452
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99US-0139456
99US-0139456
99US-0139466
99US-0139466
99US-0139466
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99US-0139463
99US-0140823
99US-0140823
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99US-0140823
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99US-0140823
99US-0144085
99US-0144085
99US-0144085
99US-0144335
99US-0145086
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Query Match
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11-AUG-1999
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     gaaaaggaaagctaaaagt
                              18; Conservative
                                                                              990S-0147935.
990S-0148171.
990S-0148171.
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990S-014824.
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                                          82.98;
94.78;
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                            Score 17.4; D
Pred. No. 1.4e
0; Mismatches
                                         DB 21
                                                    21;
                                                    Length
                              Indels
                                                      627;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             507
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RESULT
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ID AAI3
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Best Local S
Matches 18
                                                                                                        117-AUG-1999
120-AUG-1999
220-AUG-1999
220-AUG-1999
23-AUG-1999
25-AUG-1999
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27-AUG-1999
28-SEP-1999
29-SEP-1999
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24-CCT-1999
25-CCT-1999
26-CCT-1999
26-CCT-1999
27-CCT-1999
AAI35657 standard; DNA; 383
                                         521
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               6
                                        18; Conservative
                                                                                                        9908-0149175.
9908-0149723.
9908-0149933.
9908-0150866.
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9908-0151080.
9908-0151080.
9908-0151080.
9908-0151103.
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9908-0161406.
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                                                                                  82
94
                                                                                 . 7%;
                                         503
                                                       21
                                                                        Score 17.4; DB 21;
Pred. No. 1.4e+02;
0; Mismatches 1;
ВP
                                                                                         Length
                                                                           Indels
                                                                                         678;
                                                                          0;
                                                                          Gaps
                                                                          0;
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18-JUN 1999
22-JUN 1999
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23-JUN 1999
24-JUN 1999
26-JUN 1999
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28-JUN 1999
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990S-0140695
990S-0140695
990S-0141287
990S-0141287
990S-01421287
990S-0144314
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990S-0145218
990S-0147203

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AAIO4115
ID AAIO
XX
AC AAIO
XX
DT O9-C
XX
Prok
KW Prok
KW Prok
KW Infl
XX
OS Homc
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PN WO2(
XX
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Best Local (
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26-MAY-2000; 2000US-0207456.
30-JUN-2000; 2000US-0632366.
03-AUG-2000; 2000US-0632366.
21-SEP-2000; 2000US-0234687.
27-SEP-2000; 2000US-0236559.
04-OCT-2000; 2000GB-0024263.
                                                                                                                                                                                                                                                                                                                                      The present invention relates to single exon nucleic acid probes (SENP). The present sequence is one such probe. The probes are useful for producing a microarray for predicting, measuring and displaying gene expression in samples derived from human placenta. The probes are useful for antenatal diagnosis of human genetic disorders.
 09-AUG-2001
                                                                                             Probe #4106 used to measure gene expression in human breast sample
                                                                                                                     09-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                           Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           09-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Probe; microarray; human; placenta; antenatal diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Probe #4343 used to measure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAI35657;
                                                                         Probe; human; breast disease; breast cancer; development disorder;
                                                                                                                                                                                                                                                                                                                   Sequence 383
                                                                                                                                                                                                                                                                                                                                                                                                                               analyzing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Penn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30-JAN-2001; 2001WO-US00663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200157272-A2
                      WO200157270-A2
                                           Homo sapiens
                                                               inflammatory
                                                                                                                                                                AAIO4115 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (MOLE-)
                                                                                                                                                                                                                   145 tgaaaaggtaggctaaaagt 164
                                                                                                                                                                                                                             2 tgaaaaggaaagctaaaagt
                                                                                                                                                                                      7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                2001-488897/53.
                                                                                                                                                                                                                                                                                                                                                                                                                             genome-derived single exon nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            disorder;
                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOLECULAR DYNAMICS INC
                                                                                                                                                                                                                                                                                                                                                                                                         SEQ ID No 4343; 654pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hanzel DK,
                                                                                                                                                                                                                                                              Conservative
                                                               disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                    BP; 127
                                                                                                                     (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            88
                                                                                                                                                               DNA;
                                                                                                                                                                                                                                                                         90.0%;
                                                                                                                                                                                                                                                                                                                   A; 69
                                                              proliferative breast disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chen W,
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                                                                                                                                                                                                                                                              0
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                                                                                                                                                              ВР
                                                                                                                                                                                                                                                            Score 16.8; DB 22;
Pred. No. 2.4e+02;
0; Mismatches 2;
                                                                                                                                                                                                                                                                                                                    69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rank
                                                                                                                                                                                                                                                                                                                    <u>.</u>
                                                                                                                                                                                                                                                                                                                    118
                                                                                                                                                                                                                                                                                                                    T; 0 other;
                                                                                                                                                                                                                                                                                  22;
                                                                                                                                                                                                                                                                                                                                                                                                                                        probes
                                                                                                                                                                                                                                                                                  Length 383;
                                                                                                                                                                                                                                                              Indels
                                                                non-carcinoma
                                                                                                                                                                                                                                                                                                                                                                                                                                         useful
                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                             0;
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В

145 tgaaaaggtaggctaaaagt 164

0

AAF66213/c RESULT

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AAF66213

standard;

CDNA;

407

ВP

Homo sapiens

breast

Human; Novel human

cytostatic; gene therapy; cancer; lung cancer; cancer

cancer detection;

colon cancer;

polynucleotide, SEQ ID NO: 1969

09-APR-2001 AAF66213;

(first

entry)

02-JUL-1999; 02-JUL-1999;

99US-0142310. 99US-0142311.

(CHIR) CHIRON CORP

11-JAN-2001. W0200102568-A2

30-JUN-2000; 2000WO-US18374

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                                                                                    Query Match
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Matches 18
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26-MAY-2000;
30-JUN-2000;
03-AUG-2000;
21-SEP-2000;
27-SEP-2000;
04-OCT-2000;
                                                                                                                                                                                                                                                                                                                                                                                                       The present invention relates to novel single exon nucleic acid probes. The present sequence is one such probe. The probes are useful for measuring human gene expression in a human breast sample, where the prob hybridises at high stringency to a nucleic acid expressed in the human breast. The probes are useful for predicting, diagnosing, grading, staging, monitoring and prognosing diseases of the human breast, particularly those diseases with polygenic aetiology. The diseases include: breast cancer, disorders of development, inflammatory diseases of the breast, fibrocystic changes, proliferative breast disease and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Penn
                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                        Note: The sequence data for this patent did not form specification, but was obtained in electronic format
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 25; SEQ ID No 4106; 322pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Novel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2001-476286/51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29-JAN-2001;
                                                                                                                                                                                                                                                                                                                                                                                     non-carcinoma tumours.
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2 tgaaaaggaaagctaaaagt 21
|||||||| | | |||||||||
                                                                                                                                                                                                                                                                                             ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       single exon nucleic acid
human breast -
                                                                                    18; Conserv
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2000US-0180312.
2000US-0207456.
2000US-0608408.
2000US-0632366.
2000US-0234687.
2000US-02346359.
2000US-0236359.
                                                                                                                                                                                                                                   BP;
                                                                                        Conservative
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                                                                                                                                                                                                                                         127
                                                                                                                90.0%;
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                                                                                    0
                                                                                                                   Score 16.8;
Pred. No. 2
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                                                                                           Mismatches
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                                                                                                                      .4e+02;
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                                                                                                                                              22;
                                                                                           2
                                                                                           Indels
                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                           part of the printed directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene expression
                                                                                                                                                 383;
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                                                                                        Gaps
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RESULT
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Reinhard C, I
Crkenjakov R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      genes correlated with a cancerous state of a mammalian cell and can detect colon, prostate, breast and lung cancer. The library can be used to produce probes for detection of mRNA and to produce additional copies of the polynucleotides. The probes can be used for chromosome mapping of the polynucleotide and for detection of transcription levels. Ribozymes or antisense oligonucleotides can be generated. The polynucleotides and their gene products are used as genetic or biochemical markers (e.g. in blood or tissues) that will detect the earliest changes along the carcinogenesis pathway and/or monitor the efficacy of therapies and preventive interventions. The polynucleotides, polypeptides and antibodies against them can be used in pharmaceutical compositions to treat the cancers and proliferative disorders such as neoplasia,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Williams
Reinhard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Library of polynucleotides for diagnosing a cancerous state of mammalian cell and detecting cancer, particularly of the colon prostate, comprises 3351 human polynucleotide sequences -
(MOLE-) MOLECULAR DYNAMICS INC
                                                                30-JUN-2000;
03-AUG-2000;
                                                                                          04-FEB-2000;
26-MAY-2000;
                                                                                                                                  30-JAN-2001; 2001WO-US00670
                                                                                                                                                             09-AUG-2001
                                                                                                                                                                                                                                            cervical
                                                                                                                                                                                                                                                       Probe; human; microarray;
                                                                                                                                                                                                                                                                                   Probe
                                                                                                                                                                                                                                                                                                            12-OCT-2001
                                                                                                                                                                                                                                                                                                                                       AAI11559;
                                                                                                                                                                                                                                                                                                                                                                 AAI11559 standard; DNA; 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               dysplasia and hyperplasia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The present sequence is one of 3351 sequences in a library of human polynucleotides. The library is used to detect differentially expressed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2001-091805/10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kita
                                                    21-SEP-2000;
                                                                                                                                                                                      WO200157278-A2
                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (HYSE-) HYSEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity hes 18; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                  52
                                                                                                                                                                                                                                                                                                                                                                                                                                                2 tgaaaaggaaagctaaaagt
                                                                                                                                                                                                                                                                                                                                                                                          9
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                                                                                                                                                                                                                                                                                   #1492
                                                                                                                                                                                                                                           cancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      407 BP; 109 A; 62 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Page 828; 1046pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Garcia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               , Escobedo J,
Randazzo F,
R, Drmanac S,
                       ; 2000US-0180312.
; 2000US-0207456.
; 2000US-0608408.
; 2000US-0632366.
; 2000US-0234687.
; 2000US-0236359.
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                                                                                                                                                                                                                                                                                  expression analysis in human cervical cell sample
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Kennedy GC, Pot D, I
Dickson M, Labat I,
LW, Strache-Crain B;
                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                 ВP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 16.8
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      87
                                                                                                                                                                                                                                                       expression;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u>ი</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16.8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      149 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  d;
2.4e+02;
2;
                                                                                                                                                                                                                                                       cervical epithelial cell;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PD, Klinger J, Kassam
, Lamson G, Drmanac R;
I, Leshkowitiz D;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22;
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a
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Best Local Similarity
Matches 18; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The present invention relates to human single exon nucleic acid probes (SENP). The present sequence is one such probe. The SENPs are derived from human HeLa cells. The SENPs can be used to produce a single exon microarray, which can be used for measuring human gene expression in a sample derived from human cervical epithelial cells. By measuring gene
                              analyzing
                               Human genome-derived single exon nucleic acid probes useful for analyzing gene expression in human placenta {\boldsymbol{\cdot}}
                                                                                         Penn
                                                                                                                                                                                                                                                                                                                           genetic disorder;
                                                                                                                                                                                                                                                                                                                                                            Probe #1530 used to measure gene expression in human placenta
                                                                                                                                                                                                                                                                                                                                                                                                          AAI32844;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   at ftp.wipo.int/pub/published_pct_sequences.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human genome-derived single exon nucleic acid probes useful for analyzing gene expression in human cervical epithelial cells - \,
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                                                                                                                                     27-SEP-2000;
04-OCT-2000;
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30-JUN-2000;
                                                                                                                                                                                                          04-FEB-2000;
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                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                     Probe; microarray;
                                                                                                                                                                                                                                                                                                                                                                                     17-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                AAI32844 standard; DNA; 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 476 BP; 154 A; 79 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    expression, the probes are therefore useful in grading of diseases of the cervix, notably cervical cancer.
                                                                                                                                                           03-AUG-2000;
21-SEP-2000;
                                                                                                               (MOLE-)
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                                                                                         SG,
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                                                                  2001-488897/53
                                                                                                               MOLECULAR DYNAMICS INC
                                                                                        Hanzel DK,
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2000US-0207456.
2000US-0608408.
2000US-0632366.
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2000US-0236359.
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                                                                                                                                                                                                                                                                                                                            SS
                                                                                                                                                                                                                                                                                                                                     human; placenta; antenatal diagnosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             90.0%;
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                                                                                         Chen W,
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Pred. No. 2.4e
0; Mismatches
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                                                                                          Rank
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No. 2.
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nes 2;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            476;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            c acid probes
are derived
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of the printed
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Claim 25;

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No 1530;

654pp; English

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RESULT AAI01480
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Best Local S
Matches 18
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26-MAY-2000;
30-JUN-2000;
                                             The present sequence is one such probe. The probes are useful for measuring human gene expression in a human breast sample, where the probe hybridises at high stringency to a nucleic acid expressed in the human breast. The probes are useful for predicting, diagnosing, grading, staging, monitoring and prognosing diseases of the human breast, particularly those diseases with polygenic aetiology. The diseases include: breast cancer, disorders of development, inflammatory diseases of the breast, fibrocystic changes, proliferative breast disease and non-carcinoma tumours.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The present invention relates to single exon nucleic acid probes (SENP). The present sequence is one such probe. The probes are useful for producing a microarray for predicting, measuring and displaying gene expression in samples derived from human placenta. The probes are useful for antenatal diagnosis of human genetic disorders.
                 Note: The sequence data for this patent did not specification, but was obtained in electronic for
                                                                                                                                                                                                                                       Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                            21-SEP-2000;
27-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200157270-A2
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                                                                                                                                                                                                                                                                                           Novel
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    09-AUG-2001
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59 tgaaaaggtaggctaaaagt
ftp.wipo.int/pub/published_pct_sequences
                                                                                                                                                                                                                                                                           human
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human breast
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                                                                                                                                                                                                                                         SEQ ID No 1471;
                                                                                                                                                                                                                                                                                                                                                          Hanzel DK,
                                                                                                                                                                                                                                                                                                                                                                                                                          2000US-0608408.
2000US-0632366.
2000US-0234687.
2000US-0236359.
2000GB-0024263.
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2000US-0207456.
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                                                                                                                                                                                                    relates to novel single exon nucleic acid probes.
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                                                                                                                                                                                                                                                                                       probe used
                                                                                                                                                                                                                                                                                                                                                            Rank
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No. 2
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                                                                                                                                                                                                                                                                                                                                                            DR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     breast disease;
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2.4e+02;
2;
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Best Local
                                                                   The invention relates to a method for diagnosing a disorder characterised by expression of a human cancer associated antigen precursor coded for by a nucleic acid molecule (NAM). The method comprises: (a) contacting a biological sample isolated from a subject with an agent that specifically binds to the NAM, an expression product or a fragment of an expression product complexed with an HLA molecule; and (b) determining the interaction between the agent and the NAM or the expression product as a determination of the disorder. The products and methods can be used in the diagnosis, monitoring, research, or treatment of conditions characterised by the expression of various cancer associated antigens. The invention provides nucleic acid sequences and encoded polypeptides which are cancer associated antigen precursors expressed in human breast cancer, renal cancer, colon cancer, gastric cancer, prostate cancer and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22-JUN-1998;
17-JUL-1997;
10-OCT-1997;
10-OCT-1997;
10-OCT-1997;
11-OCT-1997;
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breast
                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 67; Page 677-678; 787pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New isolated cancer associated nucleic acids and polypeptides - isolated using sera from cancer patients, used to develop products
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 1999-132448/11.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chen Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15-JUL-1998;
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                                                      cancer.
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97US-0896164.
97US-0061599.
97US-0061765.
97US-0948705.
97GB-0021697.
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Scanlan M
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Sequence 476 BP; 154

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AAZ29782/c
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Best Local
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04-JUN-1998;
25-SEP-1998;
                                                                                                                                                                                                    The present sequence is a phenotype modifying genetic sequence upstream of Ds insertion. This shows homology to 3' untranslated region of potatc sucrose synthase gene. This can be used to produce transgenic plants having altered phenotypic traits, such as resistance to plant pathogens, senescence timing, starch metabolism, cell growth, expansion and/or
       25-SEP-2001
                                                                                                                                                                                                                                                                               produce transgenic
                                                                                                                                                                                                                                                                                          New
                                                                                                                                                                                                                                                                                                                               Carroll
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                                                                                                                                                                                                                                                                                                                                                                                                                                  09-DEC-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tomato mutant UQ14; sucrose synthase gene; PMGS; phenotype modifying genetic sequence senescence timing; starch metabolism; ds.
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                           AAH83805;
                                            AAH83805
                                                                                                                                                                            Sequence
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                                                                                                                              1 Similarity
17; Conser
                                            standard;
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                                                                                                                                                                                                                                                             Page 63; 93pp; English.
                                                                                                                               Conservative
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       (first entry)
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98AU-0006169
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                                            cDNA;
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94.4%;
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metabolism; ds.
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                                                                                                                                                                                                                                            RESULT
                                                                                                                                                Human; ovarian tumour;
                                                                                                                                                                 Human ovarian tumour associated polynucleotide sequence SEQ ID NO:1430.
                                                                                                                                                                                     25-SEP-2001
                                                                                                                                                                                                      ААН83806;
       Algate PA
                                           14-JAN-2000;
                                                              16-JAN-2001;
                                                                                19-JUL-2001
                                                                                                   WO200151513-A2
                                                                                                                    Homo sapiens
                                                                                                                                                                                                                         AAH83806 standard; cDNA;
                          (CORI-) CORIXA CORP
                                                                                                                                       immunogenic;
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2001WO-US01575 2000US-0176722

vaccine;

ovarian cancer; diagnosis;

gene therapy,

(first

entry)

346

ВP

25 atgaaaagcaaagctaaa 42

1 atgaaaaggaaagctaaa

18

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Matches
                        Query Match
                                                                               ovarian tumour proteins and polynucleotides can be used the development of cancer, particularly ovarian cancer be used to diagnose the onset and progression of cancer
                                                                                                                   AAH82377 to AAH83878 represent human ovarian tumour-associated polynucleotide sequences which encode ovarian tumour proteins. The ovarian tumour protein and polynucleotide sequences have cytostatic activity, and can be used in gene therapy and vaccine production. The
                                                                                                                                                                                                   Novel_ovarian tumor proteins, and nucleic acids encoding them, treat and diagnose cancers, particularly ovarian cancer -
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human ovarian tumour associated polynucleotide sequence SEQ ID NO:1429.
                                                            Sequence
                                                                                                                                                                              Claim
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                                                                                                                                                                                                                                                                                                           14-JAN-2000; 2000US-0176722
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AQ824834 HS_2332_B
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T87926 ye08c06.r1
D62554 HUM300B06B
AA987196 or92a11.s
AZ666735 1M054900.r1
AI694973 we44h08.x
BC055061 nac94h08.x
AI9941 y930f02.r1
AI9941 y930f02.r1
AI9941 y930f02.r1
AI9941 ht20b12.x
AI371083 ta07f09.x
AI371083 ta07f09.x
AI479812 th652f03.x
AZ479417 1M0300G01
BF447906 7996h10.x
BE669553 7e15a06.x
AI179333 EST222029
AW077421 f136607.x
BC292236 602386671
AV7116967 AV711967
BG611921 602613364
BC283645 602407992
BF863582 963045B07
AZER63582 963045B07
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Result
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          AL152442 Anopheles
AL152708 Anopheles
AA514077 MC2AS032.
AV276062 AV276062
BG653289 sad86e01.
AQ151824 HS_3080
AC292563 ZM0277G14
BE539217 601065480
BE539217 601063501
BB326258 BB326258
BB552761 BB552761
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2 (bases 1 to 857)

Roth,C.W., Brey,P.T., Ke,Z., Collins,F.H. and Weissenbach,J.

Direct Submission

Submitted (16-FEB-2000) BBMI, Institut Pasteur, 25, rue du Dr

Roux, Paris 75015, France

This clone is from an A. gambiae BAC library provided by F.H.

Collins and sequenced by Genoscope in collaboration with the

Laboratory of Biochem. and Biol. Molec. of Insects, Institut
                                                                                                                                                                                                                                                                                                                                              CNS01NND 857 bp DNA GSS 14-JUN-2001 Anopheles gambiae GSS SP6 end of clone 24H10 of NotreDamel library from strain PEST of Anopheles gambiae (African malaria mosquito),
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1 (bases 1 to 857)
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                                                                                                                                                                                  Direct Submission
Submitted (16-FEB-2000) Genoscope - Centre National de Sequencage
BP 191 91006 EVRY cedex - FRANCE (E-mail : segref@genoscope.cns.f:
                                                                                                                                                                                                                       Genoscope.
                                                                                                                                                                                                                                                                                        African malaria mosquito.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Anopheles g
/strain="pEST"
/db_xref="taxon:7165"
/clone="24H10"
                                                         Location/Qualifiers
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CNS078IT
BB229099
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AQB24834
AQ146623
T87926
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A2666735
A1994973
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A1953018
A19710318
A197103
A1971
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78 ATGAAAAGGAAAGCTAAAAAAT 598
                      cDNA clone & AA514077 AA514077.1
                                                                                      AA514077
MC2AS032.ACS
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This clone is from an A. gambiae BAC library provided by F.H.
Collins and sequenced by Genoscope in collaboration with the
Laboratory of Biochem. and Biol. Molec. of Insects, Institut

    Web: www.genoscope.cns.fr)
    2 (bases 1 to 863)
    2 (bases 1 to 863)
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    4 (bases 1 to 863)
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    8 (bases 1 to 863)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Nematocera; Culicoidea; Anopheles.
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                                                                                                                                                                                                                                                                                                              Similarity
20; Conserv
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/strain="pEST"
/db_xref="taxon:7165"
/clone="24005"
/clone_lib="NotreDame1"
/note="end : SP6"
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/note="end : SP6"
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                                                             211 bp mRNA EST 10-JUL-1997
38 S. mansoni cercarial Lambda Zap Schistosoma mansoni
AS-32 5', mRNA sequence.
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Contact: Karim, A.M.

Dr.Amr Karim, Department of Biochemistry
Faculty of Science, Ain Shams University
Box 11456, El-Khalifa El-Maamoun St., Abt
Tel: (202)2853561
Fax: (202)2853561
Email: Hady@sunet.shams.eun.eg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus. 1 (bases 1 to 225)

Konno, H., Alzawa, K., Akahira, S., Akiyama, J., Carninci, P., Endo, T., Fukuda, S., Fukunishi, Y., Hara, A., Hayatsu, N., Hirozane, T., Hori, F., Ishil, Y., Ishikawa, T., Itoh, M., Izawa, M., Kadota, K., Kagawa, I., Kai C., Kawai, J., Kikuchi, N., Kojima, Y., Koya, S., Kusakabe, M., Matsuyama, T., Miki, R., Mizuno, Y., Nakamura, M., Oda, H., Okazaki, Y., Matsuyama, T., Miki, R., Mizuno, Y., Nakamura, M., Oda, H., Okazaki, Y., Shigemoto, Y., Shitaki, T., Sogabe, Y., Sugahara, Y., Suzuki, H., Then, M., Then, M., Then, M., Suzuki, H., Then, M.
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19; Conserv
Laboratory for Genome Exploration Research Group, RIKEN Genomic Sciences Center(GSC), Yokohama Institute
The Institute of Physical and Chemical Research (RIKEN)
1-7-22 Suebliro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japrel: 81-45-503-9222
                                                                                                                                                                                                                                                                                                          Suzuki, H., Takahashi, F., Tateno, M., Tominaga, N., Tsunoda, Y., Watahiki, A., Watanabe, S., Yamamura, T., Yasunishi, A., Yokota, T., Yoshino, M., Muramatsu, M. and Hayashizaki, Y. RIKEN Mouse ESTS (Konno, H., et al. 1999)
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EST.
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AV276062
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Schistosoma mansoni
                                                                                                                                                                                                                            Unpublished (1999)
Contact: Yoshihide Hayashizaki
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/note="Library provided by Dr. M. 36 c 51 g 63 t
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/db_xref="taxon:6183"
/clone="AS-32"
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Pred. No. 3.8e+03;
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                                                  Yokohama, Kanagawa 230-0045, Japan
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URL:http://genome.gsc.riken.go.jp/
Sasaki.N., Izawa,M., Watahiki,M., Ozawa,K., Tanaka,T., Yoneda,Y.,
Matsuura,S., Carninci,P., Muramatsu,M., Okazaki,Y. and Hayashizaki,Y.
                         Glycine max

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;

Rosidae; eurosids I; Fabales; Fabaceae; Papilionoideae; Phaseoleae;
                                                                                                                                                                                                         BG653289 449 bp mRNA EST sad86e01.y1 Gm-c1055 Glycine max cDNA clone GENOME ID: Gm-c1055-2521 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Transcriptional sequencing: A method for DNA sequencing using RNA polymerase. Proc. Natl. Acad. Sci. U.S.A. 95 (7), 3455-3460 (1998) Itoh, M., Kitsunai, T., Akiyama, J., Shibata, K., Izawa, M., Kawai, J., Tomaru, Y., Carninci, P., Shibata, Y., Ozawa, Y., Muramatsu, M., Okazaki, Y. and Hayashizaki, Y.
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Carninci,P. and Hayashizaki,Y.
High-efficiency full-length cDNA cloning. Methods Enzymol. 303,
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                    Glycine.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="Site_1: Sal1; Site_2: BamHI; cDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. 1st strand cDNA was primed with a primer [5]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /lab_host-"DH10B"
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/dev_stage="adult"
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/strain="C57BL/6J"
/db_xref="taxon:10090"
/clone="4932432H20"
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Pred. No. 3.7e+03;
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This clone is available through: Genome Systems, Inc. 4633 World
Parkway Circle St. Louis, Missouri 63134 For further information
call: (800) 430-0030 or (314) 427-3222 FAX:(888) 919-3324 or (314)
427-3324 or contact: clones@genomesystems.com or
info@genomesystems.com web site: www.genomesystems.com
High quality sequence stop: 409.
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                                                                                                                                                                                                                                                                                                               AQ151824 457 bp DNA GSS 08-OCT-199 HS_3080_B1_H11_T7 CIT Approved Human Genomic Sperm Library D sapiens genomic Clone Plate=3080 Col=21 Row=P, DNA sequence.
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19; Conser
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Washington University School of Medicine
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Sequence-tagged connectors: scanning the human genome
                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. Mathairas; 1 to 457)

Mahairas,G.G., Wallace,J.C., Smith,K., Swartzell,S., Holzman,T.,
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                                                                       Keller, A., Shaker, R.,
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94 c 103 g 140 t
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/clone_lib="Gm-c1055"
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/lab_host="DH10B"
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/db_xref="taxon:3847"
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                                                                  e,J.C., Smith,K., Swartzell,S., Furlong,J., Young,J., Zhao,S.,
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Fax: (206) 616-3887
Email: jwallace@u.washington.edu
Sequence Tagged Connector
Plate: 3080 row: P column: 21
Class: BAC ends
                                                                                                                                                                                                                                                                                                                                                                                 1 (bases 1 to 654)
Bunn,D., Aoyagi,A., Barber,M., Beacorn,T., Duval,B., Hamil,C.,
ISlam,H., Longacre,S., Mahmoud,M., Meenen,E., Pedersen,T., Reilly
,M., Rose,M., Rose,R., Stokes,R., Tingey,A., von Niederhausern,A.
and Wright,D.,Weiss,R.
                                                                                                            Seq primer: CGTTGTAAAAACGACGGCCAGT
Class: plasmid ends
                                                                                                                                             Tel: 801 585 5606
Fax: 801 585 7177
                                                                                                                                                                                                                                                                        University of Utah Genome Center University of Utah
                                                                                                                                                                                                                                                                                                            Unpublished (2000)
Contact: Robert B.
                                                                                                                                                                                                                                                                                                                                                              Mouse whole genome scaffolding with paired end reads from 10kb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AZ992563 654 bp DNA GSS 27-APR-2001
2M0277G14F Mouse 10kb plasmid UUGC2M library Mus musculus genomic
clone UUGC2M0277G14 F, DNA sequence.
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Location/Qualifiers
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99380589
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Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
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                                                                     quality sequence stop: 654.
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E-Coli DH10B"
/organism="Mus musculus"
/strain="C57BL/6J"
/db_xref="taxon:10090"
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/clone_lib="CIT Approved Human Genomic Sperm Library D"
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/db_xref="taxon:9606"
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                                                                                                                                                                                                               cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: Incyte Genomics, Inc.
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can i
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
plate: LLAM8432 row: o column: 20
High quality sequence stop: 678.
Location/Qualifiers
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1 (bases 1 to 717)
NIH-MGC http://mgc.nci.nih.gov/.
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601065480F1 NIH_MGC_10
                                                                                                                                                                                                                                                                                                                                                                                                                                              Email: cgapbs-r@mail.nih.gov
Tissue Procurement: ATCC
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BE537306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Contact: Robert Strausberg, Ph.D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              National Institutes of Health,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                http://www.jax.org/resources/documents/dnares/). The DNA (http://www.jax.org/resources/documents/dnares/). The DNA was hydrodynamically sheared by repeated passage through a 0.005 inch orifice at constant velocity. The sheared DNA was blunt end-repaired with T4 DNA polymerase and T4 polynucleotide kinase. Adaptor oligonucleotides were ligated to the blunt ends in high molar excess. The adaptored DNA was purified and size-selected for a 9.5 to 10.5 kb range using preparative agarose gel electrophoresis. Vector DNA was prepared from a derivative of pwMA2 (gil4732114)gblAF129072.1), a copy-number inducible derivative of plasmid R1. The vector was ligated with adaptors complementary to the insert adaptors and purified. The sheared, adaptored mouse DNA was annealed to adaptored vector DNA, and transformed into chemically-competent E. coli XL10-Gold (Stratagene) cells and selected for ampicillin resistance."
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/note="Organ: cervix; Vector: pCMV-SPORT6; Site_1: NotI;
Site_2: SalI; Cloned unidirectionally. Primer: Oligo dT
                                                                            /clone_lib="NIH_MGC_10"
/cell_line="MGC36"
                                                                                                                       /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:3452011"
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/note="Vector: PWD42nv; Purified genomic DNA from M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone="UUGC2M0277G14"
/clone_lib="Mouse 10kb plasmid UUGC2M library"
                                                  /lab_host="DH10B"
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  Mus musculus cDNA clone B430206I24 BB326258
                                                     BB326258 Z81 bp mRNA EST BB326258 RIKEN full-length enriched, 4 days
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19; Conser
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National Institutes of Health, Mammalian Gene Collection (MGC)
Unpublished (1999)
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601063501F1 NIH_MGC_10
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Plate: LLAM8427 row: b column:
High quality sequence stop: 561.
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Tissue Procurement: ATCC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDNA Library Preparation: Life Technologies, Inc.
CDNA Library Arrayed by: Incyte Genomics, Inc.
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can
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a 120 c
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Site_2: SalI; cloned unidirectionally. Primer: Oligo dT
Average insert size 1.5 kb. Library prepared by Life
Technologies."
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="IMAGE:3449761"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /lab_host="DH10B"
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/cell_line="MGC36"
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Pred. No. 2.7e+03;
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URL:http://genome.gsc.riken.go.jp/

Carninci,P., Nishiyama,Y., Westover,A., Itoh,M., Nagaoka,S., Sasaki
,N., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.

Thermostabilization and thermoactivation of thermolabile enzymes by trehalose and its application for the synthesis of full length cDNA. Proc. Natl. Acad. Sci. U.S.A. 95 (2), 520-524 (1998)

Itoh,M., Kitsunai,T., Akiyama,J., Shibata,K., Izawa,M., Kawai,J., Tomaru,Y., Carninci,P., Shibata,Y., Ozawa,Y., Muramatsu,M., Okazaki,Y. and Hayashizaki,Y.
Automated filtration-based high-throughput plasmid preparation system. Genome Res. 9 (5), 463-470 (1999)

Carninci,P. and Hayashizaki,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Laboratory for Genome Exploration Research Group, RIKEN Genomic Sciences Center(GSC), Yokohama Institute
The Institute of Physical and Chemical Research (RIKEN)
1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
Tel: 81-45-03-9222
Fax: 81-45-503-9216
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Mammalia; Eutheria;
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1 (bases 1 to 281)
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                                                  prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone_lib="RIKEN full-length enriched, 4 days neonate
male adipose"
modified pBluescript KS(+) after bulk excision FLC I."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Mus musculus"
/db_xref="taxon:10090"
/clone="B430206I24"
                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Site_1: SalI; Site_2: BamHI; cDNA library was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /tissue_type="adipose"
/dev_stage="4 days neonate"
/lab_host="DH10B"
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                                                                                                                                                                                                                                                                                                                                                                                                                          Email: genome-res@gsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp/
Carninci,P., Nishiyama,Y., Westover,A., Itoh,M., Nagaoka,S., Sasa
N., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
Thermostabilization and thermoactivation of thermolabile enzymes
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cDNA. Proc. Natl. Acad. Sci. U.S.A. 95 (2), 520-524 (1998)
Itoh,M., Kitsunai,T., Akiyama,J., Shibata,K., Izawa,M., Kawai,J.
Tomaru,Y., Carninci,P., Shibata,Y., Ozawa,Y., Muramatsu,M., Okaza
Y. and Hayashizaki,Y.
                                                                                                                                                                                                                                                                                                                 Automated filtration-based high-throughput plasmid preparation system. Genome Res. 9 (5), 463-470 (1999)
Carninci,P. and Hayashizaki,Y.
High-efficiency full-length cDNA cloning. Methods Enzymol. 303,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1-7-22 Suehiro-cho, Tsurumi-ku, Tel: 81-45-503-9222 Fax: 81-45-503-9216
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Laboratory for Genome Exploration Research Group, RIKEN Genomic Sciences Center(SC), Yokohama Institute
The Institute of Physical and Chemical Research (RIKEN)
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                                                                                                                                                                                                                                            details
                                                    /clone="E330001H21"
/clone_lib="RIKEN full-length enriched,
adult female ovary"
/tissue_type="ovary"
                                                                                                                                    /db_xref="taxon:10090"
                                                                                                                                                          /organism="Mus musculus"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  , Akahira, S., Akiyama, J., Arakawa, T.,
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Pred. No.
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4.8e+03;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Dunn,D., Aoyagi,A., Barber,M., Beacorn,T., Duval,B., Hamil,C., Islam,H., Longacre,S., Mahmoud,M., Meenen,E., Pedersen,T., Reilly,M., Rose,M., Rose,R., Stokes,R., Tingey,A., von Niederhausern,A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A2936827 467 bp DNA GSS 26-APR-2
2M0193D13R Mouse 10kb plasmid UUGC2M library Mus muscullus
clone UUGC2M0193D13 R, DNA sequence.
                                                                                                                                                                                                                                                     Email: ddunn@genetics.utah.edu
Insert Length: 10000 Std Error: 0.00
Plate: 0193 row: D column: 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mouse whole genome scaffolding with paired end reads plasmid inserts % \left( 1\right) =\left\{ 1\right\} =\left\{ 1\right\} 
                                                                                                                                                                         High quality sequence stop: 467
Location/Qualifiers
                                                                                                                                                                                                                 Class: plasmid ends
                                                                                                                                                                                                                                 Seq primer: CACACAGGAAACAGCTATGACC
                                                                                                                                                                                                                                                                                                               Tel: 801 585 5606
Fax: 801 585 7177
                                                                                                                                                                                                                                                                                                                                                                                          University of Utah
University of Utah
                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Robert B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and Wright, D., Weiss, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Mus musculus"
/strain="C57BL/6J"
/db_xref="taxon:10090"
/clone="UUGC2M0193D13"
                                      /clone_lib="Mouse 10kb plasmid UUGC2M library"
/sex="Female"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="Site_1: SalI; Site_2: BamHI; cDNA library was
/lab_host="E. coli strain XL10-Gold, T1-resistant, F
/note="Vector: PWD42nv; Purified genomic DNA from M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /dev_stage="2 days pregnant adult"
/lab_host="DH10B"
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Best Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                    Email: est@watson.wustl.edu
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
Seq primer: -40ml3 fwd. ET from Amersham
High quality sequence stop: 107.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 217)

Hillier, L., Allen, M., Bowles, L., Dubuque, T., Geisel, G., Jost, S., Krizman, D., Kucaba, T., Lacy, M., Le, N., Lennon, G., Marra, M., Martin, J., Moore, B., Schellenberg, K., Steptoe, M., Tan, F., Theising, B., White, Y., Wylle, T., Waterston, R. and Wilson, R.

White, Y., Wylle, T., Waterston, R. and Wilson, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AA/UUU25 217 bp mRNA EST 19-DEC-1997 z169d12.s1 Soares_fetal_liver_spleen_lNFLS_S1 Homo sapiens cDNA clone INAGE:436055 3', mRNA sequence.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Washington University School of Medicine 4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AA700025.1 GI:2702988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tel: 314 286 1800
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Wilson RK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       human.
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/dev_stage="20 week-post conception fetus"
/lab_host="DH10B (ampicillin resistant)"
/note="Organ: Liver and Spleen; Vector: pT7T3D (Pharmacia)
with a modified polylinker; Site_1: Pac I; Site_2: Eco RI;
This is a subtracted version of the original Soares fetal
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                                                                                                                                                                                                                      /db_xref="taxon:9606"
/clone="IMAGE:436055"
                                                                                                                                                                                                                                                                                  /organism="Homo sapiens"
/db_xref="GDB:1335824"
                                                                                                                                                             /sex="male"
                                                                                                                                                                                   /clone_lib="Soares_fetal_liver_spleen_lNFLS_S1"
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19; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                      Unpublished (1995)
Contact: Wilson RK
                                                                                                                                                                                                                                                                                                                                                                                                                                                   The WashU-Merck EST Project
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hillier,L., Clark,N., Dubuque,T., Elliston,K., Hawkins,M., Holman,M., Kucaba,T., Le,M., Lennon,G., Marra,M., Parsons,J., Rifkin,L., Rohlfing,T., Soares,M., Tan,F., Trevaskis,E., Waterston,R., Williamson,A., Wohldmann,P. and Wilson,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       za51d06.s1 Soares fetal
IMAGE:296075 3' similar
                                                                                                                                                                                                                                                                           High quality sequence stop: 212.
                                                                                                                                                                                                                                                                                                                      This clone is available royalty-free through LLNL; contact the IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                 Tel: 314 286 1800 Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                           Washington University School of Medicine 4444 Forest Park Parkway, Box 8501, St. Louis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 296)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N73600
                                                                                                                                                                                                                                                                                                          Seg primer: m13 -40 forward
                                                                                                                                                                                                                                                                                                                                                  Email: est@watson.wustl.edu
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liver spleen lNFLS library.
with a Pac I - oligo(dT) pr
                                                                                                                                                                             /sex="male"
                                                                                                                                                                                                        /db_xref="taxon:9606"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Laboratory for Genome Exploration Research Group, RIKEN Genomic Sciences Center(GSC), Yokohama Institute
The Institute of Physical and Chemical Research (RIKEN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Automated filtration-based high-throughput plasmid preparation system. Genome Res. 9 (5), 463-470 (1999) Carninci,P. and Hayashizaki,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Transcriptional sequencing: A method for DNA sequencing using RNA polymerase. Proc. Natl. Acad. Sci. U.S.A. 95 (7), 3455-3460 (1998) Itoh, M. Kitsunai, T., Akiyama, J., Shibata, K., Izawa, M., Kawai, J., Tomaru, Y., Carninci, P., Shibata, Y., Ozawa, Y., Muramatsu, M., Okazak
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Email: genome-res@gsc.riken.go.jp,
URL:http://genome.gsc.riken.go.jp/
Sasaki,N., Izawa,M., Watahiki,M., Ozawa,K., Tanaka,T., Yoneda,Y.,
Matsuura,S., Carninci,P., Muramatsu,M., Okazaki,Y. and Hayashizaki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
Tel: 81-45-503-9222
Fax: 81-45-503-9216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Yoshihide Hayashizaki
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Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
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                        /tissue_type="head"
/dev_stage="12 days embryo"
/lab_host="SOLR"
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/strain="C57BL/6J"
/db_xref="taxon:10090"
/clone="3010090F07"
/note="Site_1: XhoI; Site_2: BamHI; cDNA library was
                                                                                                                     /sex="mixed"
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M., Okazaki
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104 Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. 1st strand cDNA was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Rik in Riken cDNA was

DB 10; Length 311; ORIGIN BASE COUNT

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19; Conserv Conservative 84.8%; Score 17.8; DB 10; Pred. No. 5.5e+03; 0; Mismatches 2; Indels 0; Gaps 0,

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Search completed: March 20, 2002, 00:45:18 Job time: 4384 sec

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2: /cgn2_6/ptodata/2/ina/5B_COMB.seq:*

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4: /cgn2_6/ptodata/2/ina/6B_COMB.seq:*

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32A-3/c 5661017 5661017 ANT: Dunahay, Terry G. ANT: Dunahay, Terry G. ANT: Dunahay, Terry G. ANT: Dunahay, Terry G. ANT: Jarvis, Eric DF INVENTION: METHOD TO TRANSFORM ALG DF INVENTION: METHOD TO TRANSFORM ALG OF SEQUENCES: 1 20NDENCE ADDRESS: 307: 1617 Cole Boulevard Golden FRY: U.S.A. 80401-3393 BR READABLE FORM: BN TYPE: Floppy disk M TYPE: Floppy disk M TYPE: Floppy disk M TYPE: Floppy disk M TYPE: Floppy disk ACII(DOS)text (*.*) FAPPLICATION DATA 80401-3393 FARATION NUMBER: US/08/404,732A 80 DATE: 15-030-1995 SIFICATION NUMBER: 29252 RENCE/DOCKET NUMBER: 94-31 MUNICATION INFORMATION: OCONDOCKET NUMBER: 94-31 MUNICATION INFORMATION: OFOR SEQ ID NO: 3: DE CHARACTERISTICS: CH	15.8 75.2 1012 4 US-09-446-504-32 15.8 75.2 1730 1 US-07-817-920-1 15.8 75.2 1730 1 US-08-117-006-1 15.8 75.2 1730 1 US-08-117-006-1 15.8 75.2 1730 1 US-08-117-006-1 15.8 75.2 1730 5 PCT-US93-00149-1 15.4 73.3 4431 4 US-09-532-803-8 15.4 73.3 12145 3 US-08-968-563-19 15.4 73.3 12145 3 US-08-968-563-19 15.4 73.3 12145 3 US-08-968-563-19 15.2 72.4 913 1 US-08-469-983A-19 15.2 72.4 913 1 US-08-469-019A-1 15.2 72.4 913 3 US-08-469-019A-1 15.2 72.4 1972 1 US-08-463-048-1 15.2 72.4 1972 1 US-08-463-229-1 15.2 72.4 3763 1 US-07-792-865D-1 15.2 72.4 3763 1 US-07-792-865D-1
A ALGAE, MATERIALS (CTS PRODUCED THEREBY Laboratory	Sequence 32, Appli Sequence 1, Appli Sequence 8, Appli Sequence 19, Appli Sequence 1, Appli

Query Match Best Local Similarity Whiches 18; Conserve

Conservative

; Score 16.2; D; Pred. No. 95; 0; Mismatches

DB 1;

Length 594; Indels

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: Sequence 3, Application US/08465713

: Patent No. 6121419
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                                                                                                                                                                                                                                                                                                                                                                                     Matches
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Best Local :
                                                   APPLICANT: Rowley, Janet D.
APPLICANT: Diaz, Manuel O.
TITLE OF INVENTION: COMPOSITIVITLE OF INVENTION: DETECTING
TITLE OF INVENTION: TRANSLOCANUMBER OF SEQUENCES: 8
                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEFAX: (512) 474-7577
INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
LENGTH: 1420 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTORNEY/AGENT INFORMATION:
NAME: PARKET, DAVID L.
REGISTRATION NUMBER: 32,165
REFERENCE/DOCKET NUMBER: AR
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Rowley, Janet D.
APPLICANT: Diaz, Manuel O.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR
TITLE OF INVENTION: DETECTING GENE REARRANGEMENT:
TITLE OF INVENTION: TRANSLOCATIONS
CORRESPONDENCE ADDRESS:
ADDRESSEE: Arnold, White & Durkee STREET: P. O. Box 4433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION DATA:
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ADDRESSEE: Arnold, White & Durkee
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: US
ZIP: 77210
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OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
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                                                                        COMPOSITIONS AND METHODS FOR DETECTING GENE REARRANGEMENTS TRANSLOCATIONS
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85.7%;
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Pred. No. 98;
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TELEFAX: (512) 474-7577
; INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 1420 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic)
US-08-465-713-3
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Best Local :
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FILING DATE: 17 JUNE 1993
ATTORNEY/AGENT INFORMATION:
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MEDIUM TYPE: Floppy of COMPUTER: IBM PC computer: OPERATING SYSTEM: PC
                            APPLICATION NUMBER: 07/90
FILING DATE: 11/06/92
ATTORNEY/AGENT INFORMATION:
NAME: Parker, David L.
                                                                                                  PRIOR APPLICATION DATA:
                                                                                                                                                                          CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Board of Regents
APPLICANT: The University of Texas System
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR DETECTING
TITLE OF INVENTION: GENE REARRANGEMENTS AND TRANSLOCATIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER: AR
TELECOMMUNICATION INFORMATION:
TELEPHONE: (512) 320-7200
TELEFAX: (512) 474-7577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION: 530 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/465,713
                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQUENCES: 8
                                                                                                                   APPLICATION NUMBER: PFILING DATE: 19930617 CLASSIFICATION:
                                                                                                                                                                                         COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                     COUNTRY: US
ZIP: 77210
                                                                                                                                                                                                                                                                                                                           CITY: Houston STATE: Texas
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REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY: US
ZIP: 77210
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IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
, David L. 32,165
                                                                                                                                                                                                                                                 Floppy disk
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Pred. No. 98;
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REFERENCE/DOCKET NUMBER: ARCD:072/PAR

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                                                                                                                                                            TELEPHONE: 303/275-4404
TELEFAX: 303/275-4400
INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
LENGTH: 1853 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 6, Application US/08404732A Patent No. 5661017 GENERAL INFORMATION:
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Best Local :
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INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US/08/40
FILING DATE: 15-030-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: O'CONNOT, Edna M.
REGISTRATION NUMBER: 29252
                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER: 94
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOETWARE: ASCII(DOS)text (*.*)
CURRENT APPLICATION DATA:
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MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Dunahay, Terry G.
APPLICANT: Roessler, Paul
APPLICANT: Jarvis, Eric
TITLE OF INVENTION: METHOD TO THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: (512) 320-7200
                                                                                                                                 FEATURE:
                                                                                                                                             MOLECULE TYPE:
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                                                                                                             FEATURE: 1.
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                                NAME/KEY:
LOCATION:
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                                                              NAME/KEY: 5'UTR
LOCATION: 1.445
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
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NAME/KEY: CDS
LOCATION: 446..1240
OTHER INFORMATION: /label-
NAME/KEY: Linker Sequence
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80401-3393
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                /label- NPTII
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Pred. No. 98;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 6, Applic
Patent No. 6255089
                                                                                                                                               TELEFAX: (610) 431-4181
INFORMATION FOR SEQ ID NO: 6:
SEQUENCE CHARACTERISTICS:
LENGTH: 2108 base pairs
TYPE: nucleic sold
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: DNA (genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 18; Conserv
                                                      Query Match 77...
Best Local Similarity 85...
Matches 18; Conservative
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1575 ATGAAAAGGGACCCTAAAAGT 1555
                                                                                                                                                                                                                                                                        REFERENCE/DOCKET NUMBER: 30
TELECOMMUNICATION INFORMATION:
TELEPHONE: (610) 431-1703
                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Teitler, Milt
APPLICANT: Herrick-Davis, Katharine
APPLICANT: Egan, Christina C.
TITLE OF INVENTION: Constitutively Activated Serotonin
TITLE OF INVENTION: Receptors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1359 ATGAAAAGCAATCCTAAAAGT 1339
                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/0 FILING DATE: 27-FEB-1998 CLASSIFICATION: 536 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
ZIP: 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STREET: 882 S. Matlack Street, Suite 103
STREET: P.O. Box 1663
CITY: West Chester
                                                                                                                                                                                                                                                                                                                          NAME: Weinberger, Laurence REGISTRATION NUMBER: 27,96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE:
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                 1 atgaaaaggaaagctaaaagt
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ACCase 3' c
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                                                                                                                                                    DNA (genomic)
                                                                        77.18;
85.78;
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85.7%;
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Pred. No. 99;
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Pred. No. 1
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RESULT 8
US-08-404-732A-8/c
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Sequence 8, Application US/08404732A Patent No. 5661017
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                                                                                                                                                                                              Query Match
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
WOLFORT
                                                                                                1 atgaaaaggaaagctaaaagt 21
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1626 ATGAAAAGCAATCCTAAAAGT 1606
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MEDIUM TYPE: Floppy disk
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TELECOMMUNICATION INFORMATION:
TELEPHONE: 303/275-4404
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ATTORNEY/AGENT INFORMATION:
NAME: O'CONDOR, Edna M.
REGISTRATION NUMBER: 29252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/0
FILING DATE: 15-030-1995
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APPLICANT: Jarvis, Eric
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LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: ASCII(DOS)text (*.*)
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                                                                                                                                                                Local Similarity es 18; Conserv
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                                                                                                                                                                                                                                                                                                NAME/KEY:
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NAME/KEY: Linker Sequence
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80401-3393
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1527..2120
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1249..1526
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                                                                                                                                                                             77.1%;
85.7%;
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                                                                                                                                                                                              Score 16.2;
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                                                                                                                                                                Mismatches
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RESULT 9
US-08-966-388-5
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; LOCATION: 1631..2224
; OTHER INFORMATION: /label= ACCase
US-08-404-732A-8
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Best Local S
Matches 18
                                                                Sequence 5, Application US/08966388 Patent No. 5965412
                                GENERAL INFORMATION:
APPLICANT: Tomoyu
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APPLICANT: Dunaha
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REFERENCE/DOCKET NUMBER: 94
TELECOMMUNICATION INFORMATION:
TELEPHONE: 303/275-4404
                                                                                                                                                                                                                                                                                                                                                                                                           NAME/NE BI/... /100/
LOCATION: 81/... /100/
OTHER INFORMATION: /100/
NAME/KEY: Linker Sequence
NAME/KEY: 1612..1614
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ATTORNEY/AGENT INFORMATION:
NAME: O'CONDOT, Edna M.
29252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/01
FILING DATE: 15-030-1995
CLASSIFICATION: 435
 APPLICANT:
                                                                                                                                                                   1730 ATGAAAAGCAATCCTAAAAGT 1710
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APPLICANT: Jarvis, Eric
TITLE OF INVENTION: METHOD TO TRANSFORM ALG
TITLE OF INVENTION: THEREFOR, AND PRODUCTS
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STREET: 1.
STREET: 70
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MEDIUM TYPE: Floppy u....
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
COFTWARE: ASCII(DOS)text (*.*)
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LOCATION:
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18; Conserv
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80401-3393
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1617 Cole Boulevard
Tomoyuki NISHIMOTO
Michio KUBOTA
Hiroto CHAEN
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1631..2224
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1..816
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1615..1630
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CTS PRODUCED THERI
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RESULT
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Best Local
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Patent No. 6066477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
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PRIOR APPLICATION DATA:
APPLICATION UNMBER: JP 311,235/1991
FILING DATE: 8-NOV-1996
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION UNMBER: JP 61,710/97
FILING DATE: 3-MAR-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION FOR SEQ ID NO:
                                                                                                                                                                    APPLICANT: TOMOYUK1 NISHIMOTO
APPLICANT: MICHIO CHAEN
APPLICANT: HITCH CHAEN
APPLICANT: TOShIO MIYAKE
TITLE OF INVENTION: KOJIBIOSE PHOSPHORYLASE, ITS PREPARATION AND USES
NUMBER OF SEQUENCES: 10
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compati
OPERATING SYSTEM: PC-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-628-5197
TELEFAX: 202-737-3528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
ADDRESSEE: BROWDY AND NEIMARK
STREET: 419 Seventh Street, N.W., Suite 300
                                                                                                                                                                                                                                                                                                                                                                                                              2274 AGGAAAAGGAAATATAAAAGT 2294
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                                                                                                   CITY: Washington STATE: D.C.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
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                                                                                      COUNTRY:
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                                                                                                                                                      ADDRESSEE:
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                                                                                                                                   E: BROWDY AND NEIMARK
419 Seventh Street, N.W.,
                                                                                      USA
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IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
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   PC-DOS/MS-DOS
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85.7%;
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Pred. No. 1
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                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Hiroto CHAEN
APPLICANT: HISTORY MIYAKE
TITLE OF INVENTION: KOJIBIOSE PHOSPHORYLASE, ITS PREPARATION AND USES
NUMBER OF SEQUENCES: 10
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: JP 61
FILING DATE: 3-MAR-1997
ATTORNEY/AGENT INFORMATION:
NAME: BROWDY, Roger L.
                                                                                                                                                                                              COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOTTWARE: Patent In Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELECOMMUNICATION INFORMATION: TELEPHONE: 202-628-5197
TELEFAX: 202-737-3528
                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP
FILING DATE: 3-MAR-1997
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LENGTH: 2325 base pairs
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                               ATTORNEY/AGENT INFORMATION:
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APPLICATION NUMBER:
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TELLEFAX: 248633
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STRANDEDNESS: doub
NAME: BROWDY, Roger REGISTRATION NUMBER:
                                                                                                  FILING DATE:
                                                                                                                                                 CLASSIFICATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
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419 Seventh Street, N.W.,
                                                                                                                                                                                                                                                                                                                   USA
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Hiroto CHAEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tomoyuki NISHIMOTO
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                                                            JP_61,710/97
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REFERENCE/DOCKET NUMBER: TELECOMMUNICATION INFORMATION:

TELEPHONE:

202-737-3528

202-628-5197

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Best Local Similarity
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Sequence 5, Apr-
Sequence 5, Apr-
No. 6204377
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TELEX: 248633
INFORMATION FOR SEQ ID NO:
                                                                               INFORMATION FOR SEQ ID NO:
                                                                                                                                                                     APPLICATION NUMBER: JP 61,71
FILING DATE: 3-MAR-1997
ATTORNEY_AGENT INFORMATION:
NAME: BROWDY, ROGER L
REGISTRATION NUMBER: 25,618
                                                             SEQUENCE CHARACTERISTICS:
                                                                                                                           REFERENCE/DOCKET NUMBER: TELECOMMUNICATION INFORMATION: TELEPHONE: 202-628-5197
                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOTWARE: Patent In Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
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MEDIUM TYPE: Floppy disk
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APPLICANT: Hiroto CHAEN
APPLICANT: Toshio MIYAKE
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STRANDEDNESS:
TOPOLOGY: li
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)EDNESS: double
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419 Seventh Street, N.W., Suite 300
                                              2325 base pairs
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85.7%;
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Pred. No. 1
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US-08-966-388-
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US-08-966-388-9
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GENERAL INFORMATION:
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FILING DATE: 3-MAR-1997
ATTORNEY/AGENT INFORMATION:
NAME: BROWDY, ROGET L.
REGISTRATION NUMBER: 25,61
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 3
FILING DATE: 8-NOV-1996
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent In Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
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                                                                                      FEATURE:
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MEDIUM TYPE: Floppy
                                                                                                                                            ORIGINAL SOURCE:
                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 3956 base pairs
TYPE: nucleic acid
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ADDRESSEE: BROWDY AI
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TELLEFAX: 248633
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             2426-3956 3'-UTR
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                                                                                    1-100 5'-UTR
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                                                         101-2425 mat peptide
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Hiroto CHAEN
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85.7%;
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; Pred. No. 1e+0
0; Mismatches
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Query Match
Best Local Similarity
Matches 18; Conserv

Conservative

77.18; 85.78;

Score 16.2; DB 2; Pred. No. 1e+02; 0; Mismatches 3;

Length 3956;

Indels

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Gaps

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TELEX: 248633
INFORMATION FOR SEQ ID NO:
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CORRESPONDENCE ADDRESS:
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LENGTH: 3956 base pairs
TYPE: nucleic acid
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TELEFAX: 202-737-3528
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PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 6:
APPLICATION SARR-1997
FILING DATE: 3-MAR-1997
ATTORNEY/AGENT INFORMATION:
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SOFTWARE: Patent In Release #1.0,
CURRENT APPLICATION DATA:
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APPLICANT: Toshio MIYAKE
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                                                                                                                                                                                                                                                                                                                                                                                                        NAME: BROWDY, ROGER L.
REGISTRATION NUMBER: 25,618
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                  ORGANISM:
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                                                      Local Similarity
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419 Seventh Street, N.W., Suite 300
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Hiroto CHAEN
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                                         Conservative
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SYSTEM: PC-DOS/MS-DOS
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                                                      Score 16.2;
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GENERAL INFORMATION:
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FILING DATE: 3-MAR-1997
ATTORNEY/AGENT INFORMATION:
NAME: BROWDY, ROGET L.
REGISTRATION NUMBER: 25,61
REFERENCE/DOCKET NUMBER:
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LENGTH: 3956 base pairs
TYPE: nucleic acid
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APPLICATION NUMBER:
FILING DATE:
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CORRESPONDENCE ADDRESS:
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TELEFAX: 202-737-3528
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Search completed: March 20, 2002, 01:30:39 Job time: 6505 sec

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Copyright (c) 1993 - 2000 Comp
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O9r5z8 spirochaeta
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O06691 treponema p
P96127 treponema p
O83669 treponema p
O9zs55 arabidopsis
O9zs62 arabidopsis
O9zi42 actinobacii
O9t144 oryctolagus
O9lha8 arabidopsis
O9hk43 thermoplasm
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Duery Match 23.4%; Score 403; DB 2; Length 337; aest Local Similarity 30.4%; pred. No. 2.3e-20; atches 100; Conservative 67; Mismatches 124; Indels 38; G 1 MKRKAKSILFFLLSTVLFAQETDGLAEGSKRAEPGELVLDFAELARDPSSTRLDLTNVVD 1	Y-2000 (TrEMBLrel. 13, Last sequence update) Y-2000 (TrEMBLrel. 13, Last annotation update) FLAGELLAR FILAMENT OUTER LAYER POLYPEPTIDE. Chaeta aurantia. Chaeta aurantia. Spirochaetales; Spirochaetaceae; Spirochae TaxID=147; NCE FROM N.A. NCE FROM N.A. Sequence E.P.; Sylver from the Spirochaeta aurantia flah gene and Microbiol. Lett. 106:245-251(1993). NCE 337 AA; 36772 MW; 3326E4B09661B635 CRC6	ALIGNMENTS 1 1 R528 PRELIMINARY; PRT; 337 AA. R528; PAY-2000 (TrembLrel. 13, Created)	20 105.5 6.1 1065 2 Q9AHK9 21 105.5 6.1 1105 2 Q9AHK7 22 105.5 6.1 1173 2 Q9AHK7 22 105.5 6.1 1173 2 Q9AHK7 23 104.5 6.1 1119 2 Q9AHL2 24 104.5 6.1 1119 2 Q9AHL2 25 104.5 6.1 1119 2 Q9AHL2 26 102.5 5.9 241 2 Q9AHL2 27 101.5 5.9 246 3 Q9PAE8 28 100.5 5.8 318 1 Q9PAE8 29 100.5 5.8 318 1 Q9C9Q4 30 100 5.8 651 10 Q9C9Q4 31 99.5 5.8 763 3 Q6Q13 32 99.5 5.8 763 3 Q6Q13 33 99 5.8 1408 5 Q9NEU7 35 98.5 5.7 1927 2 Q54875 36 98.5 5.7 1927 2 Q54875 37 98.5 5.7 1927 2 Q54875 38 98 5.7 665 5 Q27147 40 98 5.7 327 2 Q57028 41 97.5 5.7 327 2 Q57028 42 97.5 5.7 327 2 Q57028 43 97.5 5.7 327 2 Q9PQQ3 44 97.5 5.7 875 2 Q9PLQ3 45 97.5 5.7 875 2 Q9PLQ3 46 97.5 5.7 875 2 Q9PLQ3 47 97.5 5.7 875 2 Q9PLQ3 48 97.5 5.7 875 2 Q9PLQ3 49 97.5 5.7 875 2 Q9PLQ3 40 97.5 5.7 875 2 Q9PLQ3 41 97.5 5.7 875 2 Q9PLQ3 42 97.5 5.7 875 2 Q9PLQ3 43 97.5 5.7 875 2 Q9PLQ3 44 97.5 5.7 875 2 Q9PLQ3 45 97.5 5.7 875 2 Q9PLQ3 46 97.5 5.7 875 2 Q9PLQ3 47 97.5 5.7 875 2 Q9PLQ3 48 97.5 5.7 875 2 Q9PLQ3 49 97 5.6 893 10 Q9PLQ9
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Bacteria; Spirochaetales;
NCBI_TaxID=120784;
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 Bacteria; Spirochaetales;
NCBI_TaxID=120785;
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                    spirochete str. PFRS-B
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spirochetes in advanced periodontal
Arch. Oral Biol. 0:0-0(2000).
EMBL: AF132816; AAF64553.1;
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Pred. No. 2.7e-16;
6; Mismatches 114;
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01-0CT-2000 (TrEMBL
01-0CT-2000 (TrEMBL
FLAA-1 (FRAGMENT).
                                                                                                                                  EMBL; AF1
NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       spirochetes in advanced periodontal pockets";
Arch. Oral Biol. 0:0-0(2000).
EMBL; AF132817; AAF64554.1; -.
NON_TER 1 1 1
NON_TER 285 285
SEQUENCE 285 AA; 31917 MW; C84874F0387DBED
                                                                                                                                                                  "Polymerase chain reaction for the detection of spirochetes in advanced periodontal pockets."; Arch. Oral Biol. 0:0-0(2000).
EMBL; AF132815; AAF64552.1; -.
                                                                                                                                                                                                                                                       Treponema vincentii.
Bacteria; Spirochaetales;
CBI_TaxID=69710;
                                                                                                                                                                                                               Sato T.,
                                                                                                                                                                                                                        SEQUENCE FROM N.A. STRAIN-ATCC 35580;
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SEQUENCE FROM
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"Polymerase chain reaction for the
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                                  LNADIMADKSGGMTHNRR-----TVLDYASLAD-----
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Pred. No. 5e-16;
9; Mismatches 10
                                                                            Pred. No. 6.9e
5; Mismatches
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PORCELIA S.F., RAdOlf J.D., Norgard M.V.;

Submitted (APR-1997) to the EMBL/GenBank/DDBJ

EMBL; U97363; AAB63367.1; -.
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   Treponema
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Best Local
                                                     Spirochete.";
Science 281:375-388(1998)
Science 2801240; AAC65636.
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01-NOV-1998
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Fraser C.M., Norris S.J., Weinstock G.M., White O., Sutton G.G.,
Dodson R., Gwinn M., Hickey E.K., Clayton R., Ketchum K.A.,
Sodergren E., Hardham J.M., McLeod M.P., Salzberg S., Peterson J.,
Khalak H., Richardson D., Howell J.K., Chidambaram M., Utterback T.,
McDonald L., Artiach P., Bowman C., Cotton M.D., Fujii C., Garland S.
Hatch B., Horst K., Roberts K., Sandusky M., Weidman J., Smith H.O.,
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                                           EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                  Treponema pallidum.
Bacteria; Spirochaetales;
CBI_TaxID=160;
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EMBL; U65743; AAB47846.1; -
SEQUENCE 242 AA; 27234 MW; 86C
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NCBI_TaxID=160;
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Q1-MAY-1999 (TrEMBLrel. 10,
Q1-JUN-2001 (TrEMBLrel. 17,
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Ward C.K., Lumbley S.R., Latimer J.L., Cope L.D., Hansen E.J.;
"Haemophilus ducreyi secretes a filamentous hemagglutinin-like
protein.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacteria; Proteobacteria; Haemophilus.
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                                                                                                       NQFLGKGLIDNIKTMKEIKVSVYSLGYEIDLEVLFEDMNGMEYAYSMGTLKFKG-WADLI 210
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                                                                                                                                                                                                                                                                                                                       SGASGIVKPEDMVVDLGINNWSVL------LTPSARLQA------Y
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                                                  SQLVGK-LHANIQLQKEAK--------LILNQVTGDHESNIQGALEVAGKKADLI
                                                                                                                                                               VDSQHSSTRIYEQKTNDNSKDGIVVVETANPEVDGVSDNRFKEFNIPNSAVFNNSRTEST 167
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6.5%; Score 112; DB 2; Length 4152; 22.8%; Pred. No. 1.6e+02; ative 44; Mismatches 133; Indels 108;
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Ov 250 HSSKVKNFTFYVKDLRVLYDKLSVSI	Db 220 EGIFEVKATAGDTHLGGEDFDNRMVNHFVQEFKRKNKKDITGNPRALRRLRTACERAKRT	Qy 203FKGWADLIWSNPNYIPNISSRII	Db 160 QCTKDAGVISCLNVMRIINEPTAAAIAYGLDKKASS		Db 105PMIVVNHKGEEKQFSAEEISSI-VLIKMREIA	KRYAG	Db 61 QVAMNPTNTVFDAKRLIGRRYSDPSVQ	Matches 69; Conservative 5	imilarity	650 AA; 71053 M	PROSITE; PS00329;	PRINTS; PROUGUL; HEATSHOCK/ PROSITE; PS00297; HSP70_1;	Pfam; PF00012; HSP70; 1.	EMBL; AJ002551; CAA05547.1; HSSP; P08109; 1CKR.	Submitted (DEC-1998) to t	in complexes a	Hinderhofer K., Praendl R., Schoeffl F.;	SEQUENCE FRO	RA King K.; RL Submitted (NOV-1997) to the EMBL/GenBank/DDBJ RN [2]		NCBI_TaxID=3	Spermatophyta; Magnoliophyta; eudicotyle eurosids II; Brassicales; Brassicaceae;	Eukaryota; Viridiplantae; Streptophyta;	GN HSP70 .	01-JUN-2001 (TremBirel, 17,	01-MAY-1999 (TrEMBLrel. 10, Creat 01-MAY-1999 (TrEMBLrel. 10, Last	Q9ZS55 PRELIMINARY; PRT; 650	Db 315 EATPISSGT 323	Qy 313 EKISIAEGS 321	Db 257 TIDKGGVATNGLSHFEVVARNIDQKGKITVAKTENQKSVN-	DSDIDSESVFKVY	Db 214 IVNPNGITLNGVKTINTDREVV
	GDTHLGGEDFDNRMVNHFVQEFKRI		: : : : : : : SLNVMRIINEPTAAAIAYGLDKKAS	NIKTMKEI-KVSVYSLGYEIDLE-	: : : :		GAGGEVARE	servative 58; Mismatcl	6.5%; 19.7%;	; 71053 MW; 7	HSP70_2;	HEATSHOCK/ ; HSP70_1;	SP70; 1.		U	sin comp	oef	.A. LIOHES:) to the	.A. LIQUES;	•	Magnoliophyta; eudicotyionssicales;	diplantae; Streptophyta;	ELW 70.	17, Last	10, Creat	PRT; 65	323	321	SLSHFEVVARNIDQKGKITVAKTEN	IDSDIDSESVFKVYETSO	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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Q9ZIQ2;
01-MAY-1999 (TIEMBLrel. 10, C:
01-WAY-1999 (TIEMBLrel. 10, L:
01-JUN-2001 (TIEMBLrel. 17, L:
RTX PROTEIN (APXIV).
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Patent number EP0875574-A/5, 04-NOV-1998.
EMBL; AF021919; AAD01698.1;
EMBL; AX002409; CAB77145.1;
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InterPro; IPR003355; RTX_N,
Pfam; PF00353; hemolysinCabind; 5.
PRINTS; PR00313; Cabbungrer,
PROSITE; PS00330; HEMOLYSIN_CALCIUM; UNKNOWN_2.
SEQUENCE 1805 AA; 202129 MW; A9076E3B351BDB16 CRC64;
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                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (AUG-1997) to the EMBL/GenBank/DDBJ databases
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Frey J.;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bacteria; Proteobacteria; Actinobacillus.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APXIVA OR APXIV_V1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=715;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  340
                                                                                                                                              132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Characterization of a new RTX determinant
                      306
                                                                                                      190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      287
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                                                                                                                                                                                      76
                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                             22 TDGLAEGSKRAEPGELVLDFAE---LARDPSSTR---LDLTNYVDYVYSGASGIVKPEDM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10
  DSILEGGKGNDILRGGY 1256
                                                                                NNDNRARDIDTLKF-----TDVNY-AEVKFRRVDNDL
                                                                                                                                                                             VVDLGINNWSVLLTPSARLQAYVKNSVVA----PAVVKSESKRYAGDTILGVRVLFPSYS
                                                                                                                                                                                                         TEALFNSTFKQSPENALYDLSEYLSFFNDPTEWKEGLLLLSRYID--YAKAQGFYE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VVVVGGS-----TRIPKVQQLVQ----DFFNGKELCKSINPDEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KRVLKLREKISIAEGSF 322
                                        DSVTVKSFYSHVD---YQFDKLEFA-DRSITRDELIKAGLHLYGTDGNDD---IKDHADW
                                                                                                                        EKNNILLGSQKDNNLSGSAGDDLLIGGEG-NDTLKGSYGADTYIFSKGHGQD--IVYEDT
                                                                                                                                            QSSAMIMPPFKIPFYSGESGNQFL--GKGLIDNIKTMKEIKVSVYSLGYEIDLEVLFEDM 189
                                                                                                                                                                -----NW-----AATSNLTIARLREAGVIFAESTDLKGD------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VYETSGTESLRKLKAHETFKRVLKLREKISIAEGSFQNFVEKIESEKPEES
                                                            HSSKVKNFIFYVKDLRVLYDKLSVSIDSDIDSESVFK----VYETSGTESLRKLKAHETF
                                                                                                    NGMEYAYSMGTLKFKGWADLIWSNPNYIPNISSRIIKDDVPNYPLASSKMRFKAFRVSKS
                                                                                                                                                                                                                                                   68;
                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                            6.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Segers R.A.P.M., MacInnes J.I., Nicolet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gamma
                                                                                                                                                                                                                                                  51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Created)
                                                                                                                                                                                                                                                            Score 110;
Pred. No. (
                                                                                                                                                                                                                                                                                                                                                                                    04-NOV-1998. AKZO NOBEL NV (NL).
                                                                                                                                                                                                                                                 Mismatches 114; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (Haemophilus subdivision;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1805
                                                                                                                                                                                                                                                             64;
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Pasteurellaceae;
                                                                                 Length 1805;
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                                        1239
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                                                                                1186
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RESULT
Q9LHA8
ID QS
AC QS
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DT 01
DT 01
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Q9LHA8;

PRELIMINARY;

PRT;

650

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12

01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-UN-2001 (TrEMBLrel. 17, Last annotation update)
70 KDA HEAT SHOCK PROTEIN (HEAT SHOCK PROTEIN 70).

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Query Match
Best Local S
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01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
INTER-ALPHA-TRYPSIN INHIBITOR HEAVY CHAIN H1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR001117; Cu-oxidase.
InterPro; IPR002035; vWFA.
Pfam; PF00092; vwa; 1.
PROSITE: PS00079; MULTICOPPER_OXIDASE1;
PROSITE: PS50234; VWFA; 1.
SMART; SM00327; VWA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oryctolagus cuniculus (Rabbit).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (DEC-1999) to the EMBL/GenBank/DDBJ databases EMBL; AB035707; BAA88322.1; \dot{} -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "The sequence of rabbit Inter-alpha-trypsin inhibitor heavy cDNA.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q9TTJ4
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Suzuki A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
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  577
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KGEEKANVSSEALKMSLAYQFVTPLTSMTIRGMADEDGLEPTIDKPPEDSQP 628
                                      KLREKISIAEGSFQ----NFVEKIES------EKPEESSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LKNMSKSLVFVI-----DISGSMEGQKVKQTKEALLKIL----------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MKRKAKSILFFLLSTVLFAQETDGLAEGSKRAEPGELVLDFAELARDPSSTRLDLTNYVD
                                                                            ---ADVRARGEGQEFQTTCLVDEEEMKKLLRERGHMLENHVERLWAYLTIQELLARHVKA
                                                                                                                    FYVKDLRVLYDKLSVSIDSDIDSESVFKVYETSG---TESLRKLKAHETFKRVL-----
                                                                                                                                                          LQGFYNQVANPLLVDVELLYPQDAVVALTQHRHKQYYDGSEIVVAGRIADHKLGSFK---
                                                                                                                                                                                                -PNYIPNISSRIIKDDVPNYP----LASSKMRFKAF-----RVSKSHSSKVKNFI
                                                                                                                                                                                                                                           LKNIRSAIGGREPLYSLGEGHDLDENELKSLSMEN-----NGWAQRIYEDHDAAQQ
                                                                                                                                                                                                                                                                                 MKEIKVSV-----YSLGYEIDLEVLFEDMNGMEYAYSMGTLKFKGWADLIWSN-----
                                                                                                                                                                                                                                                                                                                           --NLNGGLLRGIEILNNAQGNLPAVSKHAAIL----IMLTDGEP-----TEGVTDRPQI 411
                                                                                                                                                                                                                                                                                                                                                               SKRYAGDTILGVRVL-----FPSYSQSSAMIMPPFKIPFYSGESGNQFLGKGLIDNIKT 165
                                                                                                                                                                                                                                                                                                                                                                                                         ----GDIRPEDYFDLVLFGSRVQSWRGSLVPASEANLQAARDFVQRFSLAGAT----
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78; Conserv
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llarity 18.9%;
Conservative 6
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 109.5;
Pred. No. 25;
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RA Fartmann B., Valle G., Bloecker H., Perez-Alonso M., Obermaier B.,
RA Delseny M., Boutry M., Grivell L.A., Mache R., Puigdomenech P.,
RA De Simone V., Choisne N., Artiguenave F., Robert C., Brottier P.,
RA Wincker P., Cattolico L., Weissenbach J., Saurin W., Quetier F.,
RA Wincker P., Cattolico L., Weissenbach J., Saurin W., Quetier F.,
RA Wincker P., Cattolico L., Weissenbach J., Saurin W., Quetier F.,
RA Wincker P., Cattolico L., Weissenbach J., Saurin W., Quetier F.,
RA Wincker P., Cattolico L., Weissenbach J., Saurin W., Quetier F.,
RA Wincker P., Cattolico L., Weissenbach J., Saurin W., Quetier F.,
RA Wincker P., Cattolico L., Weissenbach J., Saurin W., Quetier F.,
RA Wincker P., Cattolico L., Weissenbach J., Saurin W., Quetier F.,
RA Wincker P., Cattolico L., Weissenbach J., Saurin W., Quetier F.,
RA Wincker P., Cattolico L., Woss H., Holland R., Bandt P., Nyakatura G.,
RA Wincker P., Cattolico L., Waltura G., Engle S., Simionati B.,
RA Wincker P., Cattolico L., Waltura G., Perez P., Nordsiek G.,
RA Conrad A., Hornischer M., Schoen O., Bargues M., Terol J., Climent J.,
RA Mayara M., Maarse A.C., Alcaraz J., P., Cottet A., Casacuberta E.,
RA Mannhaupt G., Haase D., Schoof H., Rudd S., Zaccaria P., Mewes H.-W.,
RA Mannhaupt G., Haase D., Schoof H., Rudd S., Zaccaria P., Mewes H.-W.,
RA Mannhaupt G., Haase B., Malti R., Wu D., Peterson J., Van Aken S.,
RA Pai G., Militscher J., Sellers P., Gill J.E., Feldblyum T.V.,
RA Pai G., Militscher J., Sellers P., Gill J.E., Feldblyum T.V.,
RA Argama S., Mahasumat W., Sahabata S.,
RA Nakayama S., Nakazaki N., Shinpo S., Takeuchi C., Wada T.,
RA Nakayama S., Nakazaki N., Shinpo S., Takeuchi C., Wada T.,
RA Watanabe A., Yanda M., Yasuda M., Tabata S.,
RT "Saquence and analysis of chromosome 3 of the plant brahidone's
                                                                                                                 Query Match
Best Local S
Matches 69
                                                                                                                                                                                                                                                    PROSITE; PROSITE;
                                                                                                                                                                                                                                                                                                                                                              Nature 408:820-822(2000).
EMBL; AP002055; BAB02269.1;
EMBL; AC069474; AAG51030.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae;
eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Structural analysis of A
Sequence features of the
TAC and BAC clones.";
DNA Res. 7:217-221(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN-COLUMBIA;
PubMed-10907853;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Kaneko T., Kato T.,
Submitted (MAY-2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=21016720; PubMed=11130713;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN=COLUMBIA;
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                                                                                                                                                                                                                                                                                            PROSITE;
                                                                                                                                                                                                                                                                                                            PRINTS;
                                                                                                                                                                                                                                                                                                                                Pfam; PF00012; HSP70;
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                                                                                                                                                                                                                                                                                                                                                InterPro; IPR001023; HSP70.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
   101
                                       61
                                                                             43
                                                                                                                                   Local Similarity
   SVVAPAVV---KSESKRYAGDTILGVRVLFPSYSQSSAMIMPPFK----IPFYSGESGN
                                         QVAMNPTNTVFDAKRLIGRRYS:
                                                                           ELARDPSSTRLDLTNYVDYVYSGASGIVKPEDMVVDLGINNW--SVLLTPSARLQAYVKN
                                                                                                                                                                                                                                                  PR00301; HEATSHOCK70.

; PS00297; HSP70_1; 1.

; PS00329; HSP70_2; 1.

; PS01036; HSP70_3; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                and analysis
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                                                                                                                                                                                                                 650 AA;
                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                            Kohara M., Matsumoto M., Matsuno A., Muraki A.,
Nakazaki N., Shinpo S., Takeuchi C., Wada T.,
Yanada M., Yasuda M., Tabata S.;
d analysis of chromosome 3 of the plant Arabidop
                                                                                                                                                                                                                                                HSP70_1;
HSP70_2;
HSP70_3;
                                                                                                                                                                                                                 71101 MW;
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                                                                                                                   58;
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                                                                                                                 Score 108.5;
Pred. No. 18;
58; Mismatches
                                                                                                                                                                                                                 33381E896461C5B9 CRC64,
                                       -DPSVQADKSHWPFKVVSGPGEK-----
                                                                                                                                                       DВ
                                                                                                                 131;
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d by ninety
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                                                                                                                   93;
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STRAIN-DSM 1728;
MEDLINE-20479972; Pub
Ruepp A., Graml W., S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q9HKQ3;
01-MAR-2001
                                                                                                                                                                                                                                                                                                                                                   Hypothetical protein; Complete SEQUENCE 1124 AA; 126534 MW;
                                                                                                                                                                                                                                                                                                                                                                                                    Ruepp A., Graml W., Santos-Martinez M.-L., Koretke K.K., Volker C., Mewes H.-W., Frishman D., Stocker S., Lupas A.N., Baumeister W.; "The genome sequence of the thermoacidophilic scavenger Thermoplasma acidophilum.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=2303;
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01-MAR-2001
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-KVYETSGTESLRKLKAHETFKRVLKLREKISIAEGSFQNFVEKIE
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                                                        VPNYPLASSKMRFKAFRVSKSHSSKVKNFIFYVKDLR-VLYDKLSVSIDSDIDSESVF--
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76; Conser
                                 ·YPISESVM···--LINSNMTLEFA----LRAILY---KITIEADVDSFTIYAG
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(TrembLrel. 16, Last annotation
L MEMBRANE PROTEIN.
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                                                                                                                                     HIPFGLYSIRAENVQGYSETYGKNISIDDSSAILNITFS
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3; Mismatches
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Pred. No. 48
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Matches 76
 Q9KN45;
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01-JAN-1998
01-JAN-1998
01-JUN-2001
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MEDLINE-98035876; PubMed-9367677;
MEDLINE-98035876; PubMed-9367677;
Jones M.H., Numata M., Shimane M.;
Jones M.H., Numata M., Shimane M.;
"Identification and characterization of BRDT: A testis-specific related to the bromodomain genes RING3 and Drosophila fsh.";
Genomics 45:529-534(1997).

INTERFO; IPRO01487; Bromodomain.
                                                 Q9KN45
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PROSITE: PS50014; BROWDDOMAIN_2;
SMART; SMO0297; BROWO;
SEQUENCE 947 AA; 107891 MW; E
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Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
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Pred. No. 4
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MEDLINE-20406833; PubMed-10952301;

Heidelberg J.F., Eisen J.A., Nelson W.C., Clayton R.A., Gwinn M.L.,

Dodson R.J., Haft D.H., Hickey E.K., Peterson J.D., Umayam L.A.,

Gill S.R., Nelson K.E., Read T.D., Tettelin H., Richardson D.,

Ermolaeva M.D., Vamathevan J., Bass S., Oin H., Dragoi I., Sellers |

McDonald L., Utterback T., Fleishmann R.D., Nierman W.C., White O.,

Salzberg S.L., Smith H.O., Colwell R.R., Mekalanos J.J., Venter J.C.

Fraser C.M.,
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NCBI_TaxID=666;
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GGEMIY-RINAEADANPFTERLFKSFKLSKT 1179
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                           DLRVLYDKLSVSIDSDIDSESVFKVYETSGT
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                                                                                                                                                                                                                                  LPKPLDSMMAKLADESWYVV-----KQEAIKHLEVRWTEDVYKTFQSKLAGRYPFNPAS
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                                                         LRDSAVSKVTLIPTQTNMSPRSLQ---IQGPWAFFRLLDQGDVVSASQTS--VDFKFIVD
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Search completed: March Job time: 2423 sec 20, 2002, 00:00:37

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score
          seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Issued_Patents_AA:*
1: /cgn2_6/ptodata/2/
2: /cgn2_6/ptodata/2/
3: /cgn2_6/ptodata/2/
4: /cgn2_6/ptodata/2/
5: /cgn2_6/ptodata/2/
6: /cgn2_6/ptodata/2/
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length: 2000000000
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1719
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Gapop 10.0 , Gapext 0.5
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/cgn2_6/ptodata/2/iaa/5B_COMB.pep:*
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/cgn2_6/ptodata/2/iaa/6B_COMB.pep:*
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/cgn2_6/ptodata/2/iaa/backfiles1.pep:*
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      US-08-599-480-4
US-09-057-570-2
US-09-057-570-7
US-08-975-762-73
US-09-295-028-73
US-09-295-028-64
US-09-106-582-64
US-09-106-582-64
US-09-057-570-4
US-09-057-570-4
US-08-486-099-116
US-08-486-298-116
US-08-485-551A-116
US-08-485-554A-116
US-08-485-554A-116
US-08-485-554A-116
US-08-485-554A-116
US-08-485-558A-4
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US-08-485-558A-4
US-08-485-558A-4
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Sequence 4, Appli
Sequence 7, Appli
Sequence 73, Appli
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Sequence 64, Appli
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Sequence 116, App
Sequence 116, Appli
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                                             Query Match
Best Local Similarity
Matches 55; Conserv
      48 PSSTRLDLTNYVDYV---YSGASGIVKPEDMVVDLGINNW----SVLLTPSARLQAYVKN 100
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Result

45	44	43	42	41	40	39	38	37	36	35	34	ω ω	32	31	30	29	28
87	87	87	87	87	87.5	87.5	87.5	87.5	87.5	87.5	87.5	87.5	87.5	87.5	88.5	88.5	90
5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.2
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US-08-480-150A-10	US-08-484-596A-10	US-08-484-158B-10	US-08-484-993B-10	US-08-844-085-2	US-08-367-264-10	US-08-486-270-10	US-08-072-574-10	US-08-367-264-8	US-08-486-270-8	US-08-072-574-8	US-08-367-264-12	US-08-486-270-12	US-08-072-574-12	US-08-703-947-2	US-08-660-148-5	US-08-660-148-2	PCT-US93-12682-6
Sequence 10, Appl	Sequence 10, Appl	Sequence 10, Appl	Sequence 10, Appl	Sequence 2, Appli	Sequence 10, Appl	Sequence 10, Appl	Sequence 10, Appl		Sequence 8, Appli	Sequence 8, Appli	Sequence 12, Appl	Sequence 12, Appl	Sequence 12, Appl	Sequence 2, Appli	Sequence 5, Appli	Sequence 2, Appli	Sequence 6, Appli

ALIGNMENTS

; MOLECULE TYPE: protein US-08-599-480-4 TELEPHONE: (619) 678-5070 TELEFAX: (619) 678-5099 INFORMATION FOR SEQ ID NO: 4: SEQUENCE CHARACTERISTICS: LENGTH: 242 amino acids TYPE: amino acid TYPE: amino acid Sequence 4, Applic Patent No. 5753459 COMPUTER: IBM PC COMPATIBLE OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, Ve CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/599,480 FILING DATE: 23-JAN-1996 CLASSIFICATION: 435 ATTORNEY/AGENT INFORMATION: APPLICANT: Blanco, David R. APPLICANT: Miller, James N. APPLICANT: Lovett, Michael A. APPLICANT: Champion, Cheryl I. APPLICANT: Tempst, Paul J. TITLE OF INVENTION: NUCLEOTIDE AND AMINO ACID SEQUENCES OF A TITLE OF INVENTION: T. Pallidum RARE OUTER MEMBRANE PROTEIN NUMBER OF SEQUENCES: 4 CORRESPONDENCES: 4 TELECOMMUNICATION INFORMATION: TELEPHONE: (619) 678-5070 COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk CORRESPONDENCE ADDRESS: ADDRESSEE: Fish & Richardson P.C. STREET: 4225 Executive Square, Suite 1400 NAME: Learn, June M. REGISTRATION NUMBER: 31,238 REFERENCE/DOCKET NUMBER: 07 STREET: 4225 Exection CITY: La Jolla STATE: California COUNTRY: 92037 Application US/08599480 USA 4.. ; Score 125.5; DB 1; ; Pred. No. 5.1e-05; 31; Mismatches 104; 07419/018001 (CIP of 016001) Version #1.25 Length 242;

Conservative

Indels

55;

Gaps

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                                                                                                                                                                                                     Query Match
Best Local
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                                                                                                                                                                                    Matches
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                                                                                                                                                                                                                                                                                                                           TELDERAX: (301) 948-975:
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 1657 amino acids
TYPE: amino acid
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APPLICANT: Frey, Joachim
TITLE OF INVENTION: Live attenuated Actinobacillus
TITLE OF INVENTION: pleuropneumoniae
NUMBER OF SEQUENCES: 7
                                                                                                                                                                                                                                                                                                                                                                                                                        REGISTRATION NUMBER: 34,409
TELECOMMUNICATION INFORMATION:
TELEPHONE: (301) 948-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 09-APR-1998
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: PatentIn Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
                                      914
132 QSSAMIMPPFKIPFYSGESGNQFL--GKGLIDNIKTMKEIKVSVYSLGYEIDLEVLFEDM 189
                                                                                                            860
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                                                                    76 VVDLGINNWSVLLTPSARLQAYVKNSVVA----PAVVKSESKRYAGDTILGVRVLFPSYS 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Gormley, Mary E. REGISTRATION NUMBER: 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
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                                                                                                                                            22 TDGLAEGSKRAEPGELVLDFAE---LARDPSSTR----LDLTNYVDYVYSGASGIVKPEDM 75
                                                                                                                                                                                  Local Similarity
les 68; Conserv
                                                                                                                                                                                                                                                                                                                  TOPOLOGY:
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                                      ----WW----
                                                                                                          TEALFNSTFKQSPENALYDLSEYLSFFNDPTEWKEGLLLLSRYID--YAKAQGFYE----
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NO: 2:
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                                                                                                                                                                                                   6.4%; Score 110; DB 3
21.5%; Pred. No. 0.048;
                                    ----AATSNLTIARLREAGVIFAESTDLKGD------
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                                                                                                                                                                                  51; Mismatches 114;
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                                                                                                                                                                                                                  Length 1657;
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US-09-057-570-7
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                                                                                                                                                                                                                                                                                       Matches
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Best Local Similarity
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APPLICANT: Segers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: PatentIn Release #1.0, Version CURRENT APPLICATION DATA: APPLICATION NUMBER: US/09/057,570 FILING DATE: 09-APR-1998 ATTORNEY/ACENT IMPORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                       1062
                                                                                                                                                                                                       1008 TEALFNSTFKQSPENALYDLSEYLSFFNDPTEWKEGLLLLSRYID--YAKAQGFYE---- 1061
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: Live attenuated Actinobacillus TITLE OF INVENTION: pleuropneumoniae
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                                       1091 EKNNILLGSQKDNNLSGSAGDDLLIGGEG-NDTLKGSYGADTYIFSKGHGQD--IVYEDT 1147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
LENGTH: 1805 amino acids
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  190 NGMEYAYSMGTLKFKGWADLIWSNPNYIPNISSRIIKDDVPNYPLASSKMRFKAFRVSKS 249
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Gormley, Mary E. REGISTRATION NUMBER: 34,409
                                                                                                                                                             76 VVDLGINNWSVLLTPSARLQAYVKNSVVA----PAVVKSESKRYAGDTILGVRVLFPSYS 131
                                                                                                                                                                                                                                             22 TDGLAEGSKRAEPGELVLDFAE---LARDPSSTR---LDLTNYVDYVYSGASGIVKPEDM 75
                                                                                                                                                                                                                                                                                                                                                                                                                              TOPOLOGY:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CITY: Rockville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
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                                                                             QSSAMIMPPFKIPFYSGESGNQFL--GKGLIDNIKTMKEIKVSVYSLGYEIDLEVLFEDM 189
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (301) 948-9751
                                                                                                                                                                                                                                                                                     Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (301) 948-7400
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                                                                                                                     ----AATSNLTIARLREAGVIFAESTDLKGD------- 1090
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                                                                                                                                                                                                                                                                                   Score 110; DB 3; Length 1805; Pred. No. 0.055; 1; Mismatches 114; Indels 8
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US-08-975-762-73
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Best Local S
Matches 68
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GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 73,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: 206-682-6031 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Reed, Steven G.
APPLICANT: Lodes, Michael J.
APPLICANT: Houghton, Raymond
TITLE OF INVENTION: COMPOUNDS AND METHODS
NUMBER OF SEQUENCES: 73
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/975,762
FILING DATE: 21-MAR-1997
CLASSIFICATION: 424
CLASSIFICATION: 424
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NAME: MAK1, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELECOMMUNICATION INFORMATION: TELEPHONE: 206-622-4900
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                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
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SNPNYIPNISSRIIKD--DVPNYPLA---SSKMRFKAFRVSKSHSSKVKNFIFYVKDL---
                                                     VEISSDAVDISGSDISDDELQKLFEE----QYKNSLNFPEYRSADYIIMAEDDLLADVIV 269
                                                                       KEIKVSVYSL-GYEI---DLEVLFEDMNGMEYAYSMGTLKFKG---
                                                                                                                       SYVNKIRNALPSTIL-MECLEPNRAE------LHIPYYDALAKDVVLGL-LQHRVADI 213
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                                                                                                                                                                                                                                                                      68;
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58; Conservative
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                                                                                                                                                                                                                                                                                                                                                                       protein
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                                                                                                                                                                                                                                                                                                   Length 530;
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US-09-295-028-73
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                                                                                                                                                                                                                                                                                                     RESULT
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APPLICANT: Lodes, Michael J.
APPLICANT: Houghton, Raymond L.
APPLICANT: McNeill, Patricia D.
TITLE OF INVENTION: COMPOUNDS AND MI
TITLE OF INVENTION: AND TREATMENT OF
FILE REFERENCE: 210121.439C4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: US/09/295,028
CURRENT FILING DATE: 1999-04-20
NUMBER OF SEQ ID NOS: 85
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 73
LENGTH: 530
TYPE: PRT
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Best Local Similarity
Matches 68; Conserv
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 73, Application Patent No. 6277381
                                                                                                                                    APPLICANT: Lodes, Mic
APPLICANT: Houghton,
TITLE OF INVENTION: (
NUMBER OF SEQUENCES:
COMPUTER READABLE FORM:
                                                                                                                       CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                             APPLICANT:
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                                                                                                                                                                                                                                                                                                                                                                                      265 -RVLYDKLSVSIDSDIDSESVFKVYE----TSGTESLRKLKAHETFKRVL-KLREKIS
                                               CITY: Seattle
STATE: Washington
                               COUNTRY:
                                                                                    STREET:
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                                                                                                      ADDRESSEE:
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                                                                                      6300 Columbia Center,
                                                                                                                                                                                         Lodes, Michael J
                                                                                                                                             Houghton, Raymond VENTION: COMPOUNDS AND METHODS FOR THE DIAGNOSIS
                                                                                                                                                                                                             Reed, Steven G.
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                                                                                                    SEED and BERRY LLP
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22.8%;
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Pred. No. 0.15;
4; Mismatches 101;
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                                                                                    701 Fifth Avenue
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US-09-066-047-2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/106,582
FILING DATE: 29-JUN-1998
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELECOMMUNICATION INFORMATION: TELEPHONE: 206-622-4900
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   74 DMVV-----DLGINNWSVLLTPSARLQAYVKN------SVVAPAVVKSE 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Match 5.7%; Score 97.5; DB 4; Local Similarity 22.8%; Pred. No. 0.15;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION:
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COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                APPLICAN: ...
STOREY, James
BELTZ, Gerald A.
COUGHLIN, Richard T.
COUGHLIN, RICHARD T.
TITLE OF INVENTION: NUCLEIC ACIDS, PROTEINS, AND METHODS
USE OF GRANULOCYTIC ERHLICHIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -RVLYDKLSVSIDSDIDSESVFKVYE----TSGTESLRKLKAHETFKRVL-KLREKIS 316
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              amino acid
                                                                                                                               STATE: Massachusetts
                                                                                                                                                        CITY: Boston
                                                                                                                                                                          ADDRESSEE: HALE AND DORR LLP STREET: 60 State Street
                                                                                                           COUNTRY: United States
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              530 amino acids
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US-08-975-762-64
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                                                                                                                                                                                                                                                                                                                                              Sequence 64,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                             GENERAL INFORMATION:
APPLICANT: Reed, Steven G.
APPLICANT: Lodes, Michael J.
APPLICANT: Houghton, Raymond
TITLE OF INVENTION: COMPOUNDS AND METHODS FOR THE DIAGNOSIS AND
NUMBER OF SEQUENCES: 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION FOR SEQ ID NO: 2: SEQUENCE CHARACTERISTICS:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   171
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                                                               COUNTRY: USA
ZIP: 98104
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                                                                                                       STATE:
                                                                                                                                            STREET:
                                                                                                                                                               ADDRESSEE:
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TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 526-6000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US 60/044,869
FILING DATE: 25-APR-1997
ATTORNEY/AGENT INFORMATION:
NAME: Superko, Colleen
REGISTRATION NUMBER: 39,850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/066,047A
FILING DATE: 24-Apr-1998
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS: single TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
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                                                                                                                                                                                                                                                                                                                             4, Application US/08975762 6207169
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                                                                                                                         Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: (617) 526-5000
TELEFAX: (617) 526-5000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: PatentIn Release #1.0, Version
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                                                                                                Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 546 amino acids
                                                                                                                                        6300 Columbia
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                                                                                                                                                               SEED and BERRY LLP
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                                                                                                                                              Center,
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                                                                                                                                              Fifth
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                                                                              ; ORGANISM: Ehrlichia
US-09-295-028-64
                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-295-028-64
   Query Match
Best Local Similarity
                                                                                                                                                      SEQ ID NO 64
                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 64, Application US/09295028 Patent No. 6277381
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Best Local Similarity
                                                                                                                                                                                                                                                                                                   APPLICANT: Reed, Steven G.
APPLICANT: Lodes, Michael J.
APPLICANT: Houghton, Raymond L.
APPLICANT: MCNeill, Patricia D.
                                                                                                                                                                                                                                          TITLE OF INVENTION: COMPOUNDS AND METHODS FOR THE DIAGNOSIS TITLE OF INVENTION: AND TREATMENT OF EHRLICHIA INFECTION FILE REFERENCE: 210121.439C4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: 206-682-6031
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 590 amino acid
                                                                                                                                                                      NUMBER OF SEQ ID NOS: 85
SOFTWARE: FastSEQ for Windows Version 3.0
                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/09/295,028
CURRENT FILING DATE: 1999-04-20
                                                                                                                   TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME: Mak1, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 21
TELECOMMUNICATION INFORMATION:
TELEPHONE: 206-622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTORNEY/AGENT INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             164 SYVNKIRNALPSTIL-MECLFPNRAE-----LHIPYYDALAKDVVLGL-LQHRVADI 213
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 21-MAR-1997
CLASSIFICATION: 424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OPERATING SYSTEM:
SOFTWARE: Patentl
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEIKVSVYSL-GYEI---DLEVLFEDMNGMEYAYSMGTLKFKG-----WADLIW 211
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   5.7%;
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22.8%; Pred. No. 0
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n Release #1.0,
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   Score 97.5;
Pred. No. 0.
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DB
.18;
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                   Length 590;
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                                                                                                                                                             ; TOPOLOGY: 11; HOLECULE TYPE: US-09-106-582-64
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                                                                                     Query Match
Best Local Similarity
                                                                       Matches
                                                                                                                                                                                                                                                                     TELEFAX: 206-682-6031
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
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APPLICANT: Lodes, Michael J.
APPLICANT: Lodes, Michael J.
APPLICANT: Houghton, Raymond
APPLICANT: Houghton, Raymond AND METHODS FOR THE DIAGNOSIS AND
                                                                                                                                                                                                                                                                                                                                                                 ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 21
                                                                                                                                                                                                                                                                                                                                              TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               212
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110 DMVVEKFAHDLGIR------VGSNSLRSLIKNIRIFQDANGVFDQERYEAVLADSGMTES 163
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                  74 DMVV-----DLGINNWSVLLTPSARLQAYVKN------
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TELEPHONE: 206-682-6031
TO TO NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: FILING DATE: 29-JUN CLASSIFICATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
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                                                                                                                                                                                                                   STRANDEDNESS
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22.8%;
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                                                                                        Score 97.5; DB 4; Pred. No. 0.18;
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                                                                      Mismatches
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US-09-057-570-4
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                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX: (301) 948-97 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/057,570
FILING DATE: 09-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
NAME: Gormley, Mary E.
                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE CHARACTERISTICS:
LENGTH: 1382 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REGISTRATION NUMBER: 34,409 TELECOMMUNICATION INFORMATION:
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CORRESPONDENCE ADDRESS:
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943
                                   132 QSSAMIMPPFKIPFYSGESGNQFL--GKGLIDNIKTMKEIKVSVYSLGYEIDLEVLFEDM 189
                                                                          914 -----
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                                                                                                                                                                                                                                              Local Similarity
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EKNNIVLGSQKDNNLSGSAGDDLLIGGEG-NDTLKGSYGADTYIFSKGHGQD--VIYEYS
                                                                                                             VVDLGINNWSVLLTPSARLQAYVKNSVVA----PAVVKSESKRYAGDTILGVRVLFPSYS 131
                                                                                                                                                TEALFNSTYKQSPENVLYDLREYLSFYNDPTEWKEGLLLLSRYID--YAKAQGFYE----
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Pred. No.
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                                                                                        Query Match
Best Local S
Matches 69
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Patent No.
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                                                                                                                                                                                                                                                       INFORMATION FOR SEQ ID NO: 116: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/0
FILING DATE: 07-JUN-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: COUZZI, Laura A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
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TELEFAX: 66141
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103 VAPAVVKSESKRYAGDTILGVRVLFPSY-SQSSAMIMPPFKIPFYSGESGNQFLGKGLID 161
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SOFTWARE: Patentin
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                                                           ELARDPSSTRLDLTNYVDYVYSGASGIVKPEDMVVDLGINNWSVLLTPSARLQAYVKNSV 102
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                                                                                                     Similarity
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Langlois, Alphonse J
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Matthews, Thomas J.
Wild, Carl T.
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[n Release #1.0,
                                                                                                      5.4%; Score 93;
21.2%; Pred. No.
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US-08-484-223B-116
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Query Match 5.4%; Score 93; DB 3; Length 607; Best Local Similarity 21.2%; Pred. No. 0.55; Matches 69; Conservative 53; Mismatches 117; Indels
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APPLICANT: Bologn
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INFORMATION FOR SEQ ID NO:
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                                                                                                                                                                                                                                                             NAME: COPUZZÍ, LAURA A.
REGISTRATION NUMBER: 30,742
REFERENCE/DOCKET NUMBER: 78
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: PatentIn Rel
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                       ZIP: 10036-2711
COMPUTER REALABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
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                                                                                                   MOLECULE TYPE:
                                                                                                                                                                               SEQUENCE CHARACTERISTICS
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CORRESPONDENCE ADDRESS:
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TOPOLOGY: ur
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TELEFAX: (212) 869-9741/8864
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CLASSIFICATION:
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Langlois, Alphonse J.
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                                                INFORMATION FOR SEQ ID NO:
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                                                                                                                                                                                                                                                                                           COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOTTWARE: Patentin Release #1.0, CURRENT APPLICATION DATA:
                SEQUENCE CHARACTERISTICS:
LENGTH: 607 amino acids
                                                                                            REGISTRATION NUMBER: 30,742
REFERENCE/DOCKET NUMBER: 7872-020
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
                                                                                                                                                                          APPLICATION NUMBER: US 01 FILING DATE: 06-JUN-1995 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
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                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
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10036-2711
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                                                                                 (212) 869-9741/8864
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152 LFSDVQFKMSHKRIMLFTNEDNPHGNDSAKASRARTKAGDLRDTGIFLDLMHLKKPGGF-
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Langlois, Alphonse J.
LANGIOIS, METHODS AND COMPOSITIONS FOR INHIBITION
VENTION: METHODS AND COMPOSITIONS FOR INHIBITION
VENTION: OF MEMBRANE FUSION-ASSOCIATED EVENTS, INCLUDING
VENTION: TRANSMISSION
EQUENCES: 273
Version #1.30
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; TOPOLOGY: unknown ; MOLECULE TYPE: protein US-08-919-597-116
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US-08-475-668A-116
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Best Local Similarity
Matches 69; Conserv
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                                                                                                                                                                                                                  COUNTRY: USA
ZIP: 10036-2711
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Ver:
APPLICATION NUMBER: US/08/475,668A
FILING DATE: .07-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                      INFORMATION FOR SEQ
                                                                          CLASSIFICATION: 424
ATTOREY/AGENT INFORMATION:
NAME: COFUZZI, LAUTA A.
REGISTRATION NUMBER: 30,742
REFERENCE/DOCKET NUMBER: 7872
TELECOMMUNICATION INFORMATION
TELEPHONE: (212),790-9090
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Petteway, Stephen R.
TITLE OF INVENTION: COMPOSITIONS FOR INHIBITION OF MEMBRANE
TITLE OF INVENTION: FUSION-ASSOCIATED EVENTS, INCLUDING INFLUENZA VIRUS
TITLE OF INVENTION: TRANSMISSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              261
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1155 Avenue of the Americas
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Lambert, Dennis M.
                      ID NO:
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21.2%; Pred. No. 0.
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KLNKDIVISVGIY-NLVQKALKPPP 284
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21.2%; Pred. No.
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ALIGNMENTS

	COMMENT	AUTHORS TITLE JOURNAL	REFERENCE	ACCESSION VERSION KEYWORDS SOURCE	RESULT 1 CNSOOEVL/c LOCUS DEFINITION
The BDGP is constructing a physical map of the Drosophila melanogaster genome using these BACs. For further information please see http://www.fruitfly.org The BDGP Drosophila melanogaster BAC library was prepared by Kazutoyo Osoegawa and Aaron Mammoser in Pieter de Jong's laboratory in the Department of Cancer Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The library is named RPCI-98 and was constructed by partial EcoRI digestion of Drosophila DNA provided by the BDGP from the isogenic strain y2; cn bw sp, the same strain used for the BDGP's pl and EST libraries. A more detailed description of the library and how to order individual BAC clones, the entire library; or filters for hybridization from the BACPAC Resource Center can be found at http://bacpac.med.buffalo.edu/drosophila_bac.htm.		Genoscope. Direct Submission Submitted (02-JUN-1999) Genoscope - Centre National de Sequencage : BP 191 91006 EVRY cedex - FRANCE (E-mail : seqref@genoscope.cns.fr	Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta; Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha; Ephydroidea; Drosophilidae; Drosophila. 1 (bases 1 to 1101)	fly), genomic survey sequence. AL069706 AL069706.1 GI:4949849 GSS. fruit fly.	CNSOOEVL 1101 bp DNA GSS 04-JUN-1999 Drosophila melanogaster genome survey sequence T7 end of BAC: BACR29B23 of RPCI-98 library from Drosophila melanogaster (fruit

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ACCESSION
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Pterygota; Neoptera; Endopterygota; Diptera; Brachycera;
Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
1 (bases 1 to 1101)
 - Web : www.genoscope.cns.fr)
Determination of this BAC-end
                   Submitted (02-JUN-1999) Genoscope - BP 191 91006 EVRY cedex - FRANCE (E:
                                                                                                                                                       DIASOPPHIA MELANOGASEER GENOME SURVEY SEQUENCE T7 end of BAC: BACR29B23 of RPCI-98 library from Drosophila melanogaster (frufly), genomic survey securoca
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/clone_lib="RPC1-98"
/clone="BACR29B23"
/note="end : T7"
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; pred. No. 2.6e-05;
90; Mismatches 239;
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                  E-mail : segref@genoscope.cns.fr
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u> МММИНАМАТҮТСТСАНТЫТММММИМЖААТЫТЫЖАААЖАААЖТТАТЫАААТЫААААААЖЫ</u>
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Similarity 34.1%; Pred. No. 9.6e-05;
98; Conservative 106; Mismatches 277;
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/db_xref="taxon:7227"
/clone_lib="mRPCI-98"
/clone="BACR29B23"
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KAGATTTWTATGTAAATAATDTAGWWATAAAATTAAAAARAWTWTTTTWATATWAWAAA
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Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera;
Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
1 (bases 1 to 1101)
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/db_xref="taxon:7227"
/clone_lib="RPCI-98"
/clone="BACR29P01"
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Determination of this BAC-end sequence was carried out as part of a collaboration with the Berkeley Drosophila Genome Project (BBGP). The BDGP is constructing a physical map of the Drosophila melanogaster genome using these BACs. For further information please see http://www.fruifily.org The BDGP Drosophila melanogaster BAC library was prepared by Kazutoyo Osoegawa and Aaron Mammoser in Pieter de Jong's laboratory in the Department of Cancer Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The library is named RPCI-98 and was constructed by partial EcoRI digestion of Drosophila DNA provided by the BDGP from the isogenic strain y2; cn bw sp. the same strain used for the BDGP's Pl and EST libraries. A more detailed description of the library or filters for hybridization from the BACPAC Resource Center can be filters for hybridization from the BACPAC Resource Center can be
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Drosophila melanogaster genome survey sequence T7 end of BAC #
BACR27A24 of RPCI-98 library from Drosophila melanogaster (fruit
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Pterygota; Neoptera; Endopterygota; Diptera; Brachycera;
Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
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/clone="BACR27A24"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (02-JUN-1999) Genoscope - Centre National de Sequencage BP 191 91006 EVRY cedex - FRANCE (E-mail : segref@genoscope.cns.fr - Web : www.genoscope.cns.fr)

Determination of this BAC-end sequence was carried out as part of collaboration with the Berkeley Drosophila Genome Project (BDGP). The BDGP is constructing a physical map of the Drosophila melanogaster genome using these BACs. For further information
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1 (bases 1 to 1101)
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Tetraodon nigroviridis genome survey sequence PUC-Ori end of of 220112 of library G from Tetraodon nigroviridis, genomic survey
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SOURCE ORGANISM JOURNAI AUTHORS JOURNAL Submitted (12-APR-2000) to the EMBL/GenBank/DDBJ databases This sequence is a single read and was generated as part of scale clone-end sequencing project of the Tetraodon nigrovigenome. For more information, please take a look at http://www.genoscope.cns.fr/Tetraodon. Roest-Crollius,H., Jaillon,O., Bernot,A., Fizames,C., Wincker, Saurin,W. and Weissenbach,J. Human gene number estimate prov Charaterization and repeat analysis of the compact freshwater pufferfish Tetraodon nigroviridis Roest-Crollius,H., Jaillon,O., Dasilva,C., Fizames,C., Fi Bouneau,L., Billault,A., Quetier,F., Saurin,W., Bernot,A. Weissenbach,J. Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei Actanthomorpha; Acanthopterygii; Percomorpha; Tetraodontiformes; GSS; genome survey sequence. Tetraodon nigroviridis. Tetraodon nigroviridis Genoscope Unpublished Tetraodon nigroviridis Unpublished retraodontidae; Tetraodon (bases 1 to 1029) (bases 1 to 1029) (bases 1 to Submission 1029) DNA Wincker, P., Brottier, P., provided by genome wide analysis using sequence Bouneau,L., Fisher,C., r,P., Quetier,F., genome of the part of a large nigroviridis Neoteleostei; Fisher,C., ,A. and of a

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Pterygota; Neoptera; Endopterygota; Diptera; Brachycera;
Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.

1 (bases 1 to 996)
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Drosophila melanogaster genome survey sequence TET3 end of BAC:
BACR31021 of RPCI-98 library from Drosophila melanogaster (fruit
 - Web : www.genoscope.cns.fr)
Determination of this BAC-end
                   Submitted (02-JUN-1999) Genoscope - Centre National BP 191 91006 EVRY cedex - FRANCE (E-mail : segref@gc
                                       Genoscope
Direct Submission
                                                                                                                                       fly), genomic survey sequence.
ALO71063
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                           tagcagagggttctaaaagggcagagcctggag
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/db_xref="taxon:7227"
/clone_lib="RPCI-98"
/clone="BACR31021"
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gtctttaataaaaacaatgcgctttaactatcctggtaagataaaaaagattattattct
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                                                  TKTKTTKTTTTTTTTTKATRAGAAAAWARAGAGWGGGGGGGGGGTGTKTKTTTTTTT
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/db_xref="taxon:7227"
/clone_lib="RPCI-98"
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Web: www.genoscope.cns.fr)

Determination of this BAC-end sequence was carried out as part of a collaboration with the Berkeley Drosophila Genome Project (BDGP). The BDGP is constructing a physical map of the Drosophila melanogaster genome using these BACs. For further information please see http://www.fruitfly.org The BDGP Drosophila melanogaster BAC library was prepared by Kazutoyo Osoegawa and Aaron Mammoser in Pieter de Jong's laboratory in the Department of Cancer Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The library is named RPCI-98 and was constructed by partial EcoRI digestion of Drosophila DNA provided by the BDGP from the isogenic strain y2; on bw sp, the same strain used for the BDGP's pland EST libraries, A more detailed description of the library
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Pterygota; Neoptera; Endopterygota; Diptera; Brachycera;
Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
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/clone="BACR05N11"
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          Submitted (07-SEP-2000) Genoscope - Centre National de Sequencage,
2 rue Gaston Cremieux, CP 5706, 91057 EPNY cedex, FRANCE. (E-mail:
seqrefggenoscope.cns.fr - Web: www.genoscope.cns.fr)
This GSS is part of a random genomic sequencing program of thirteen
yeast species: Saccharomyces bayanus var. uvarum, Saccharomyces
exiguus, Saccharomyces servazzii, Zygosaccharomyces rouxii,
Saccharomyces kluyveri, Kluyveromyces thermotolerans, Kluyveromyces
lactis var. lactis, Kluyveromyces marxianus var. marxianus, Pichia
angusta, Debaryomyces hansenii var. hansenii, Pichia sorbitophila,
Candida tropicalis and Yarrowia lipplytica. Genomic inserts of 3 to
5 kb were prepared and both extremities were sequenced. See
keywords for description of this sequence and for the sequence of
the other extremity of this insert.
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Bolotin-Fukuhara, M., Bon, E., Brottier, P., Casaregola, S.,
de-Montigny, J., Dujon, B., Durrens, P., Lepingle, A., Llorente, B.,
Malpertuy, A., Neuveglise, C., Ozier-Kalogeropoulos, O., Potier, S.,
Saurin, W., Tekaia, F., Toffano-Nioche, C., Wesolowski-Louvel, M.,
Wincker, P. and Weissenbach, J.
Genomic exploration of the hemiascomycetous yeasts: 1. A set of
yeast species for molecular evolution studies
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Artiguenave, F., Wincker, P. and Gaillardin, C.
Genomic exploration of the hemiascomycetous yeasts:
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Direct Submission
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Web: www.genoscope.cns.fr)
Determination of this BAC-end sequence was carried out as part collaboration with the Berkeley Drosophila Genome Project (BDC The BDGP is constructing a physical map of the Drosophila melanogaster genome using these BACs. For further information please see http://www.fruitfly.org The BDGP Drosophila melanogaster BAC library was prepared by Kazutoyo Osoegawa and
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Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera;
Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Aaron Nammoser in Pieter de Jong's laboratory in the Department of Cancer Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The library is named RPCI-98 and was constructed by partial EcoRI digestion of Drosophila DNA provided by the BDGP from the isogenic strain y2; on bw sp, the same strain used for the BDGP's Pl and EST libraries. A more detailed description of the library and how to order individual BAC clones, the entire library, or filters for hybridization from the BACPAC Resource Center can be
                                                                               sequence.
AL285149
                                                                                                              Tetraodon
101H21 of
            GSS; genome survey sequence
Tetraodon nigroviridis
Tetraodon nigroviridis
                                                                 AL285149.1
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Eukaryota; Metazoa; Chordata;
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/db_xref="taxon:7227"
/db_xref="RPCI-98"
/clone="BACR08K08"
/clone="BACR08K08"
/note="end: TET3"
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Pred. No. 0.0031;
                                                                                                                genome survey sequence T7
om Tetraodon nigroviridis,
Craniata; Vertebrata;
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gaaagctaaaagtattttattttt 505
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                                                                    aattaaaaaacgaaaattttataaaagatttatatataaggagttggtttacatgaaaag
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (12-APR-2000) to the EMBL/GenBank/DDBJ databases This sequence is a single read and was generated as part of a largeate clone-end sequencing project of the Tetraodon nigroviridis genome. For more information, please take a look at http://www.genoscope.cns.fr/Tetraodon.
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/db_xref="taxon:99883"
/clone="101H21"
/clone=1ib="G"
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/note="Genoscope sequence ID : COB
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KRRDRKRADDKRDAADDRDDAATWTTWTTTTTRDTDDWKWKTDTWTRWAADRTWDRDDDD
                        atgaatcttttgatgttaaggtcaatctttttgctatgtctttaataaaaacaatgcgct
                                                                                    GWADADWWT - - - WDAAAADDWWADDRWDAWAWKWDDAWAWGARTADRRDWGDRAGKRGGAR
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Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Ins
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera;
Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.

1 (bases 1 to 1101)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (02-JUN-1999) Genoscope - Centre National de Sequencage BP 191 91006 EVRY cedex - FRANCE (E-mail : segref@genoscope.cns.fi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               fly), genomic survey sequence. AL063921
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/db_xref="taxon:7227"
/clone_lib="RPCI-98"
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                                                                   Submitted (23-JUL-1999) Genoscope · Centre National de Sequencage : BP 191 91006 EVRY cedex · FRANCE (E-mail : seqref@genoscope.cns.fr) · Web : www.genoscope.cns.fr) Determination of this BAC end sequence was carried out as part of a collaboration with the European Drosophila Genome Project (EDGP) · http://www.edgp.ebi.ac.uk · This Drosophila melanogaster BAC library (Dros BAC) was made by Alain Billaud at CEPH (Centre d'Etude du Polymorphisme Humain) with funding provided by a MRC project grant. The DNA was prepared from embryos by Alain Bucheton and Genevieve Payan. It has been constructed in the vector
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Pterygota; Neoptera; Endopterygota; Diptera; Brachycera;
Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
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Pterygota; Neoptera; Endopterygota; Diptera; Brachycera;
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/db_xref="taxon:7227"
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                Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
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1: /cgn2_6/ptodata/2/ina/5A_COMB.seq:*
2: /cgn2_6/ptodata/2/ina/5B_COMB.seq:*
3: /cgn2_6/ptodata/2/ina/6A_COMB.seq:*
4: /cgn2_6/ptodata/2/ina/PCTUS_COMB.seq:*
5: /cgn2_6/ptodata/2/ina/PCTUS_COMB.seq:*
6: /cgn2_6/ptodata/2/ina/Dackfiles1.seq:*
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US-09-150-741-1
US-07-638-431-1
PCT-US-92-0018-1
US-08-883-795A-36
US-08-883-795A-36
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US-08-991-867B-8
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Sequence 13, Appl Sequence 288, App Sequence 288, App Sequence 1137, Ap Sequence 1137, Ap Sequence 1137, Ap Sequence 1137, Ap Sequence 1, Appli Sequence 13, Appli Sequence 13, Appli Sequence 14, Appli Sequence 15, Appli Sequence 16, Appli Sequence 17, Appli Sequence 18, Appli Sequence 18, Appli Sequence 19, Appli Sequence 11, Appli Sequence 15, Appli Sequence 11, Appli Sequence 11, Appli Sequence 13, Appli Sequence 14, Appli Sequence 15, Appli Sequence 14, Appli Sequence 15, Appli Sequence 14, Appli Sequen
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LATE: 10-SEP-1993 PAGENT INFORMATION: 435 ISTAGENT INFORMATION: ISTAGENT, Ned RATION NUMBER: 29, NCE/DOCKET NUMBER: 1010 NUMBER: 619) 235-805 NE: (619) 235-0176 NE:		ion US im L im L che s, Che s, Che norahau norahau norahau norahau norahau norahau norahau	3000 6243 3095 51952 660 660 660 1511 1511 1511 1511 1511 15
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NIH121.001CP1 N:	Martens Olson & Bear Martens Olson & Bear t Center Drive 16th Floor th W: W: Py disk compatible pC-DOS/MS-DOS Release #1.0, Version #1.25 NTA: US/08/487,826B	ALIGNMENTS /08487826B tan s H. vid S. n n DING DOMAINS FROM PLASMODIUM VIVAX PLASMODIUM FALCIPARUM ERYTHROCYTE	US-08-764-100-9 US-09-056-075-1 5231168-1 US-08-947-823-1 US-08-994-16-1011 US-07-991-867B-32 US-08-107-755A-32 US-08-107-755A-8 US-08-107-755A-8 US-08-107-755A-8 US-08-113-842-20 US-08-913-842-1
		IUM VIVAX	Sequence 9, Appli Sequence 1, Appli Sequence 1, Appli Sequence 11, Appli Sequence 20, Appl Sequence 32, Appl Sequence 32, Appli Sequence 32, Appli Sequence 8, Appli Sequence 8, Appli Sequence 1, Appli Sequence 1, Appli Sequence 20, Appli Sequence 20, Appli Sequence 1, Appli Sequence 20, Appli Sequence 20, Appli Sequence 1, Appli Sequence 395, Appli Sequence 395, Appli Sequence 395, Appli Sequence 396, Appli Sequence 20, Appli

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                                         TELEFAX: (416)
INFORMATION FOR SEQ
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                            FORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                  REFERENCE/DOCKET NUMBER: 78
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: FC-DOS/MS-DOS
OPERATING SYSTEM: FC-DOS/MS-DOS
                                                                                                                                                                                                 SOFTWARE: PatentIn Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                         CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
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                                                                      TELEPHONE:
                                                                                                                REGISTRATION NUMBER:
                                                                                                                                                                        APPLICATION NUMBER: US/0 FILING DATE: 27-JUN-1997
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GENERAL INFORMATI
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Best Local
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ORIGINAL SOURCE:
ORGANISM: Hom
                                                                                 CORRESPONDENCE ADDRESS
                                                                                               NUMBER OF SEQUENCES:
                                                                                                             APPLICANT: Rebischung, Corinne
TITLE OF INVENTION: GENOMIC DNA SEQUENCES
TITLE OF INVENTION: AND USES THEREOF
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                      ADDRESSEE: No. 6239264artis ConstreET: 3054 Cornwallis Road CITY: Research Triangle Park STATE: No. 6239264th Carolina
COUNTRY: UZIP: 27709
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ttaataaaaacaatgcgctttaactatcctggtaagataaaaaagattattattcttgtt 365
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                                                                                                                                                                                                                                           INFORMATION:
                                                                                                                                                       Wendland, Jurgen
Knechtle, Philipp
                                                                                                                                                                                  Pohlmann, Rainer
Steiner, Sabine
Mohr, Christine
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linear
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                                                                   6239264artis Corporation
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47.8%;
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Pred. No. 0.00018;
                                                                                                                              OF ASHBYA GOSSYPII
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COMPUTER READABLE FORM:

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Best Local S
Matches 231
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INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REGISTRATION NUMBER: 38,241
REFERENCE/DOCKET NUMBER: PF/5-30306/A/CGC1976
TELECOMMUNICATION INFORMATION:
TELEPHONE: 919-541-8587
TELEPAX: 919-541-8589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
LENGTH: 837 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: PatentIn Rel
CURRENT APPLICATION DATA:
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ORIGINAL SOURCE:
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NAME: Meigs, J. Timothy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION: 435
PRIOR, APPLICATION DATA:
563
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OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                           61
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
les 231; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TOPOLOGY:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM:
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TTTAATTAATATTTATCATTATTAATTAAT 594
                      gaaagctaaaagtattttatttttttttattat 512
                                                                    tgtctttaataaaaacaatgcgctttaactatcctggtaagataaaaaaagattattattc 360
                                                                                                                                                                                                                                                                    ttttatattcttttttaaagaattggagtttattatgtaaatctttcaagagaattttatg
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                                                   TCTTTTTATAAGAATTATTAAAATTAATTTAACTTTAATTTCTTATTATTAATTTT
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SYSTEM: PC-DOS/MS-DOS
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45.18;
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Pred. No. 0.00025;
0; Mismatches 281;
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Best Local Similarity
Matches 214; Conserv
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TELEFAX: 919-541-8689
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE/DOCKET NUMBER: 38,241
TELECOMMUNICATION INFORMATION:
TELEPHONE: 919-541-8587
TELEPAX: 919-541-777
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CORRESPONDENCE ADDRESS:
ADDRESSE: No. 6239264artis Corporation
STREET: 3054 Cornwallis Road
CITY: Research Triangle Park
STATE: No. 6239264th Carolina
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE:
ORIGINAL SOURCE:
ORGANISM: PAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION: 435
PRIOR APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Wendland, Jurgen
APPLICANT: Knechtle, Philipp
APPLICANT: Rebischung, Corinne
TITLE OF INVENTION: GENOMIC DNA SEQUENCES
TITLE OF INVENTION: AND USES THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
LENGTH: 837 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 31-DEC-1996
ATTORNEY/AGENT INFORMATION:
NAME: Meigs, J. Timothy
REGISTRATION NUMBER: 38,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
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342 ataaaaaagattattattcttgttgaagggtgtatcttaaaggagcaaagttgataaatt 401
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                                                                                                                                                                                                                        166 taagtgattcaagatttttatattcttttttaaagaatggagtttattatgtaaatcttt 225
                                                                                                                                                                                                                                                                                     656 ATAATATAGGTTCGGATCCTTTTATAAGTATTTTTAACTACATTCTTTATAATATTTTAT 597
                                                                                                                                                                                                                                                                                                                      106 atcttttagtaaaagattttcttttaggaagcaatgaggggttttcttttgggtttttat 165
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OPERATING SYSTEM:
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                                                                                                                                              caagagaattttatgattctttaataatggtgattataatgaatcttttgatgttaagg
                                         TTAAAATTAATTTAATAATAATTCTTATAAAAAAGATTAAATAATAATAAATCAACATAAT
                                                                                                                       AAATAAAATGAAATA - - TAATTTATTAAATAATATAAAAATTAATAATAAGAAATTAAG
                                                                           tcaatctttttgct----atgtctttaataaaaacaatgcgctttaactatcctggtaag 341
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IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
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Steiner, Sabine
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24-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                3.8%; Score 62.4; DB 4; 52.2%; Pred. No. 0.00025; ative 0; Mismatches 186;
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                                                                         Query Match
Best Local Similarity
                                                             Matches
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                                                                                                                                                                                                                                                                               TELEFAX: 919-541-8689 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/998,416
FILING DATE: 24-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Rebischung, Corinne
TITLE OF INVENTION: GENOMIC DNA SEQUENCES OF ASHBYA GOSSYPII
TITLE OF INVENTION: AND USES THEREOF
                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
LENGTH: 615 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: CH 0016/97
FILING DATE: 31-DEC-1996
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CORRESPONDENCE ADDRESS
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                                                                                                                                                                     ORIGINAL SOURCE:
                                                                                                                                                                                      MOLECULE TYPE:
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                                                  Local Local 211;
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   10
                                                                                                                                                                                                                                                                                                                                        NAME: Meigs, J. Timothy
REGISTRATION NUMBER: 38,241
REFERENCE/DOCKET NUMBER: PF/5-30306/A/CGC1976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
                               75
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                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
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                                                                                                                                                        ORGANISM:
                                                                                                                                                                                                                    STRANDEDNESS:
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                    agagatgaacaaaatttgaaagataatttagatcttttagtaaaagattttcttttagga 134
ATATATAATTTTAATTTATAAAGATTAATATAAACTTTTTTTATTATAATATTTAAGTATTA 69
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Research Triangle Park
No. 6239264th Carolina
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       USA
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Knechtle, Philipp
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Steiner, Sabine
Mohr, Christine
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                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       E: Floppy disk
IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                        PAG1074RP
                                                                                                                                                                                                     linear
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                                                                                                                                                                                     DNA (genomic)
                                                                                                                                                                                                                 single
                                                                          3.7%;
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                                                            Score 61.8; I
Pred. No. 0.00
0; Mismatches
                                                            8; DB 4;
0.00031;
ches 227;
                                                                                        Length 615;
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RESULT 6
US-08-998-416-1137
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 1137,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
TELEFAX: 919-541-8689
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                               REFERENCE/DOCKET NUMBER: PF
TELECOMMUNICATION INFORMATION:
TELEPHONE: 919-541-8587
                                                                                                                                                                   FILING DATE: 24-DEC-1
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                        APPLICATION NUMBER: CH 00 FILING DATE: 31-DEC-1996 ATTORNEY_AGENT INFORMATION: NAME: Meigs, J. Timothy REGISTRATION NUMBER: 38,7
                                                                                                                                                                                                                                  SOFTWARE: PatentIn Rel
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION:
TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
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                                             TELEPHONE:
                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                         CITY: Research Triangle Park STATE: No. 6239264th Carolina
                                                                                                                                                                                                                                                                                                                                                                                       STREET:
                                                                                                                                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
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                                                                                                                                                                                                                                                                                                                                        USA
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VENTION: GENOMIC DNA SEQUENCES OF ASHBYA GOSSYPII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Wendland, Jurgen
Knechtle, Philipp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pohlmann, Raines
Steiner, Sabine
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                                                                                                                                                                                                                                                                                                                                                                                                    No.
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                                                                                           38,241
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                                                                             PF/5-30306/A/CGC1976
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; ORIGINAL SOURCE:
; ORGANISM: PAG1692RP
US-08-998-416-1137
                                                                                                                                                                                                                                                                                            US-08-998-416-186/c
                                                                                                                                                                                                                                                  Sequence 186, Application US/08998416 Patent No. 6239264 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity Matches 243; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                           APPLICANT: Rebischung, Corinne
TITLE OF INVENTION: GENOMIC DNA SEQUENCES
TITLE OF INVENTION: AND USES THEREOF
NUMBER OF SEQUENCES: 1152
CORRESPONDENCE ADDRESS:
                                                                                                                                                                              APPLICANT: Philippsen, Pete
APPLICANT: Pohlmann, Rainez
APPLICANT: Steiner, Sabine
APPLICANT: Mohr, Christine
APPLICANT: Wendland, Jurgen
COMPUTER READABLE FORM:
                                                                                                                                                       APPLICANT:
                                       STREET: 3054 COCITY: Research'
STATE: No. 6239
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STRANDEDNESS: sing
TOPOLOGY: linear
                COUNTRY: U
ZIP: 27709
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                                                                                   ADDRESSEE: No. 6239264artis Corporation
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Research Triangle Park
No. 6239264th Carolina
                                                                                                                                                                Wendland, Jurgen
Knechtle, Philipp
                          USA
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Steiner, Sabine
                                                                                                                                                                                                                                      Philippsen, Peter
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Pred. No. 0.00038;
0; Mismatches 276;
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                                                                                                                                       ASHBYA GOSSYPII
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RESULT 8
US-08-998-416-1137/c
; Sequence 1137, Application US/08998416
; Patent No. 6239264
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FILING DATE: 31-DEC-1996
ATTORNEY/AGENT INFORMATION:
NAME: M4545, J. Timothy
REGISTRATION NUMBER: 38,241
REFERENCE/DOCKET NUMBER: PF/5
TELECOMMUNICATION INFORMATION:
TELEPHONE: 919-541-8587
TELEFAX: 919-541-8689
INFORMATION FOR SEQ ID NO: 186:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 181;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIA RELEASE #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE:
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
LENGTH: 615 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               148 tttctttttgggtttttattaagtgattcaagatttttatattctttttttaaagaatggag 207
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS: single
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                                                                                                                                                                                                                                                                                                                                                                      tttattatgtaaatctttcaagagaaattttatgattctttaataatggtgattataatg 267
                                                                                                                                                            AATAATATTAATTATTGATAATCTATTTAATAATTATTAAAGAAAATAATAATATCT
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                                                                                              253
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.68;
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Pred. No. 0.00085;
0; Mismatches 179;
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GENERAL INFORMATION:

APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:

Philippsen, Pete Pohlmann, Rainer Steiner, Sabine

Peter

507

257

447

433 327

Mohr, Christine Wendland, Jurgen

COUNTRY:

ADDRESSEE:

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Query Match
Best Local Similarity
Matches 195; Conserv
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ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTORNEY/AGENT INFORMATION:
NAME: Meigs, J. Timothy
REGISTRATION NUMBER: 38,2
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELECOMMUNICATION INFORMATION:
TELEPHONE: 919-541-8587
TELEFAX: 919-541-8689
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MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: GENOMIC DNA SEQUITIFIED OF INVENTION: AND USES THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET: 3054 Cornwallis Road
CITY: Research Triangle Park
STATE: No. 6239264th Carolina
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: CH 00 FILING DATE: 31-DEC-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 2
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
  taaaagattttcttttaggaagcaatgaggggttttctttttgggttttttattaagtgatt 174
                                                                                                                                                                                                                          ttgctatgtctttaataaaaacaatgcgctttaactatcctggtaagataaaaaagatta 354
                                                                                                                                                                                                                                                                                                                                                                                                                                                    caagattttatattctttttaaagaatggagtttattatgtaaatctttcaagagaat 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ttgctaatttaagatatttaagagatgaacaaaatttgaaagataatttagatcttttag 114
                                                                                    TTAATTATTAAATAATGATAATAATAGTTTAAATAATTTAATACTTAAATATTATAATA
                                                                                                                                   ttattcttgttgaagggtgtatcttaaaggagcaaagttgataaattaaattttactaat 414
                                                                                                                                                                                        tttatgattcttttaataatggtgattataatgaatcttttgatgttaaggtcaatcttt 294
                                                                                                                                                                                                                                                                                                                                                                                                             TAATAATTTATTAAAGAAAATAATAATATCTAATA-ATATTTTAATAACTAATTTAAAAAT 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGAACATAGACTAAATAGTATTCATATTAAATATTATTTTTATAATTATAAATATTA 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nucleic acid
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SYSTEM: PC-DOS/MS-DOS
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GENOMIC DNA SEQUENCES OF ASHBYA GOSSYPII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 СН 0016/97
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; MOLECULE TYPE:
US-08-446-855A-1
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US-08-446-855A-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Sim
Matches 224;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 1, Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Stewart, APPLICANT: Stewart, APPLICANT: Flores, Maria V
APPLICANT: O'Sullivan, William J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
FILING DATE: 06-Jul-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER: 47
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTORNEY/AGENT INFORMATION: NAME: Mitchard, Leonard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                  68
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TO TO NO:
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OPERATING SYSTEM:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY: USA
ZIP: 22201-4714
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE:
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aataaaaacaatgcgctttaactatcctggtaagataaaaaagattattattcttgttga
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                                                                                                                                                                                                                                                                                                                                                                                                                                                          atatttaagagatgaacaaaatttgaaagataatttagatcttttagtaaaagattttct 127
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                                                                                    TAATATATAGGATGGTTTTATTATAAGAAGTGTAAAAACTATATTAATGTGTACACATCAA 435
                                                                                                                                taataatggtgattataatgaatcttttgatgttaaggtcaatctttttgctatgtcttt 307
                                                                                                                                                                                                                       ttcttttttaaagaatggagtttattatgtaaatctttcaagagaattttatgattcttt 247
                                                                                                                                                                                                                                                                                                      AATAAATATATAAAATTAAAATTATAGGAACCACAATATTGGGGGAGTATTATATATTGTGTA 495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
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Pred. No. 0.0074;
0; Mismatches 28
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US-08-998-416-1137

ORGANISM:

TOPOLOGY:

LENGTH:

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US-09-150-741-1/c
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APPLICANT: Stewart et al.
TITLE OF INVENTION: Nucleotide Sequence Encoding Carbamoyl Phosphate
Patent No. 6183996
TITLE OF INVENTION: Synthetase II
                                                                                                                                                                                                                                                                                                                                                                              Ouery Match
Best Local Similarity 44.4
----- 224; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO 1
LENGTH: 8920
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILE REFERENCE:
CURRENT APPLICATION NUMBER: US/09/150,741
CURRENT FILING DATE: 1998-09-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EARLIER APPLICATION NUMBER: PL6380
EARLIER FILING DATE: 1992-12-16
EARLIER APPLICATION NUMBER: AU93/00617
EARLIER FILING DATE: 1993-12-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EARLIER FILING DATE: 1995-07-06 NUMBER OF SEQ ID NOS: 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: PatentIn Ver. 2.0
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: DNA
ORGANISM: Plasmodium falciparum
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aataaaaacaatgcgctttaactatcctggtaagataaaaaagattattattcttgttga 367
                                                                                                             TAATATATAGGATGGTTTTATTATAAGAAGTGTAAAAACTATATTTAATGTGTACACATCAA 435
                                                                                                                                      taataatggtgattataatgaatcttttgatgttaaggtcaatctttttgctatgtcttt
                                                                                                                                                                 AATAAATATATAAATAAAATTATAGGAACCACAATATTGGGGAGTATTATATATTGTGTA
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Pred. No. 0.0074;
0; Mismatches 28
                                                                                                                                                                                                                                                                                                                                                                                                                    DB 4; Length 8920
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RESULT 11
US-07-638-431-1/c
; Sequence 1, Application US/07638431
; Patent No. 5198535
; Patent No. 5198535
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; NAME/KEY: CDS; LOCATION: 718..3195; OTHER INFORMATION: US-07-638-431-1
                                                                                                                                                                                                                                                                                                                                                                                  AFFILID DATE.

FILING DATE.

CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: Spevack, Avrom D.
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION 1055-6759
TELEPHONE: (301) 295-6759
TELEPHONE: (301) 295-4033
TO NO: 1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTAL.

ZIP: 20814-504+

ZIP: 20814-504+

COMPUTER READBELE FORM:

COMPUTER: Floppy disk

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

COMPUTER: PC-DOS/MS-DOS

COMPUTER: PC-DOS/MS-DOS
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APPLICATION NUMBER: US/07/638,43 FILING DATE: 19910110
                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
LENGTH: 4673 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Hedstrom, Richard APPLICANT: Khusmith, Srisin APPLICANT: Rogers IV, William O. TITLE OF INVENTION: Protective m TITLE OF INVENTION: immunogen an
                                                                                                                                                                                                                                                               MOLECULE TYPE: I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                       FEATURE:
                                                                                                                                                                                                                              ORIGINAL SOURCE:
                                                                                                                      CELL TYPE: erythrocytic stage
                                                                                                                                                                                                                                                ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET: NMRDC Building 1 T-1
STREET: Medical Center
CITY: Bethesda
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TYPE: NUCLEIC ACID
STRANDEDNESS: double
                                                                                     CLONE:
                                                                                                                                                          DEVELOPMENTAL STAGE: erythrocytic TISSUE TYPE: Blood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STATE:
                                                                                                       LIBRARY:
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                                                                                   : Py-lambdagtll-2-7 kb genomic expression Py10.1111
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Matches 229;

Conservative

0,

Score 55.4; DB 1; Pred. No. 0.0086; 0; Mismatches 271;

Length 4673; Indels

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Gaps

Query Match Best Local Similarity

3.3%; 45.7%;

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 1, Application PC/TUS9200018 GENERAL INFORMATION:
TELEFAX: (3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3610
                                                     NAME: Spevack, Avram D. TELECOMMUNICATION INFORMATION:
                                                                         ATTORNEY/AGENT INFORMATION: NAME: Spevack, Avram D.
                                                                                                                                                                                                                                               ZIP: 20814-5044
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: Protective malaria sporozoite surface protein TITLE OF INVENTION: immunogen and gene encoding NUMBER OF SEQUENCES: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Hedstrom, Richard APPLICANT: Khusmith, Srisin APPLICANT: Rogers IV, William O.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Hoffman, Stephen APPLICANT: Charoenvit, Yupin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3790 CATTTTGTTTATTCTTTTTTATCGATAATATTGGTGGATTTGTCTATTTTTTTAGGAAT 3731
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                                                                                                                                                                       CURRENT APPLICATION DATA:
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                                                                                                             APPLICATION NUMBER: POFILING DATE: 19920103
CLASSIFICATION: 424
                                                                                                                                                                                                                                                                                                                                             STREET: NMRDC Building
STREET: Medical Center
CITY: Bethesda
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                                                                                                                                                                                                     COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                 TELEPHONE: (301) 295-6759
TELEFAX: (301) 295-4033
                                                                                                                                                                                         SOFTWARE: PatentIn Release #1.24
                                                                                                                                                                                                                                                                                                           COUNTRY:
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NMRDC Building 1 T-12 National Naval
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US-08-487-826B-13; Sequence 13, Ap; Patent No. 5993

GENERAL INFORMATION:
APPLICANT: Sim, K
APPLICANT: Chitni
APPLICANT: Miller

Sim, Kim L. Chitnis, Chetar Miller, Louis F 3, Application 5993827

US/08487826B

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Best Local Similarity 45.7%;
Matches 229; Conservative
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HYPOTHETICAL: N
ANTI-SENSE: N
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LENGTH: 4673 base pairs
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LIBRARY: Py-la
3430
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CLONE: Py10.1111
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: CDS
LOCATION: 718..31
OTHER INFORMATION:
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TOPOLOGY: li
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GTTAATTTAAAATAACTTAAT 3410
               ggaaagctaaaagtattttat 500
                                                                      taattaaaaaacgaaaattttataaaagatttatatataaggagttggtttacatgaaaa 479
                                                                                                                 ttgttgaagggtgtatct-taaaggagcaaagttgataaatttaaattttactaataaaaa 419
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US-08-487-826B-13
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INFORMATION FOR SEQ ID NO: 13:
SEQUENCE CHARACTERISTICS:
LENGTH: 19124 base pairs
TYPE: nucleic acid
STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOLECULE TYPE: CD
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APPLICANT:
 6482
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                                                                                                                                                                                     6302 TTTATAATGTGTATTTTACTTATTTTTTTTATATTATACAATAAAATTTTGAAAATTCATA
                                                                                                                                                                                                                                                                                                              HYPOTHETICAL:
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE/DOCKET NUMBER: NI
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQUENCES:
                           518 gttctttttgctcaagagactgatggattagcaga 552
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                                                                                                                                                                                                                      339
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US/0 FILING DATE: 10-SEP-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Match 3.3%;
Local Similarity 47.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
ATGCTATATATATATATATAATAAATTATAATA 6516
                                                              aattaaattttactaataaaaataattaaaaaacgaaaattttataaaagatttatatat 457
                                                                                                                                                                                                         gttaaggtcaatctttttgctatgtctttaataaaaacaatgcgctttaactatcctggt 338
                                                                                                                                                                                                                                                                                                                                              aatctttcaagagaattttatgattcttttaataatggtgattataatgaatcttttgat 278
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Wellems, Thomas E.
                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
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16th Floor
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GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                      Matches 193;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: (416) 361-1398 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US/08/883,795A
FILING DATE: 27-7UN-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Gravelle, Micheline
NAME: Gravelle, Micheline
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
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MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
ADDRESSEE: BERESKIN & PARR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Delcuve, Genevieve APPLICANT: Awang, Gregor TITLE OF INVENTION: Recombinar TITLE OF INVENTION: Vectors for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE:
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELECOMMUNICATION INFORMATION:
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LENGTH: 665 base pairs
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                                                                                                                                                                                                                                                394
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ZIP: M5H 3Y2
                                                                                                                                                                                                                                                                                93
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cctggtaagataaaaaagattattattcttgttgaagggtgtatcttaaaggagcaaagt 392
                                                                                                                                tatgtaaatctttcaagagaattttatgattcttttaataatggtgattataatgaatct 272
                                                                                                                                                                                             tttgggtttttattaagtgattcaagatttttatattctttttttaaagaatggagtttat 212
                                                                                                                                                                                                                                              TTTAATTATAAAATATGTAATTATAAACATTTTAATTATAAAATATGTAATTATAAACAT 335
                                                                                                                                                                                                                                                                                                                   TGTAATTATAAAATATGTAATTATAAACATTTTAATTATAAAAATATGTAATTATAAACAT 395
                                     tttgatgttaaggtcaatctttttgctatgtctttaataaaaacaatgcgctttaactat 332
                                                                                                        TTTAATTATAAAATATGTAATTATAAACATTTTAATTATAAAATATTTAATTATAAACAT
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5985607
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45.5%;
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Pred. No. 0.0093;
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                                                                                                                                                                                                                                                                                                                                                                                                                    Length 665;
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US-08-817-926-27
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US-08-817-926-27
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Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 234133/1995
FILING DATE: 12-SEP-1995
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 42536/1996
FILING DATE: 29-FEB-1996
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                       TELEFAX: (202)672-5399
TELEX: 904136
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: DEC DOS/MS-DOS
COMPUTER: Patront Delbase #1 0
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APPLICANT: Kato, No. 6001590uo
APPLICANT: Sakal, Yasuyoshi
TITLE OF INVENTION: PROMOTER/TERMINATOR FOR CANDIDA BOIDINII
TITLE OF INVENTION: FORMATE DEHYDROGENASE GENE
NUMBER OF SEQUENCES: 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn Release
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/O
FILING DATE: 09-MAY-1997
                                                                                                                                                                                                                                                         TELECOMMUNICATION INFORMATION: TELEPHONE: (202)672-5300
TELEFAX: (202)672-5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 435
PRIOR APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: PCT/
FILING DATE: 12-SEP-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CITY: Washington STATE: D.C.
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ZIP: 20007-5109
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Suda, Hisako
Tamai, Yukio
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3.2%;
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Score 54; DB 3; Pred. No. 0.016;
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                                                attattattcttgttgaagggtgtatcttaaaggagcaaagttgataaattaaattttac 410
                                     TTTATTATTATTATCGAAAAAAACCTTAAAAAGGACTTCGTAAATTTTATTGTAATAA 4669
                                                                            ctttttgctatgtctttaataaaaacaatgcgctttaactatcctggtaagataaaaaag 350
                                                                                                                                                                                            ACGCAAAAATGACATATAAAGAA 4693
                                                                                                                                                                                                                                   162; Conservative
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Search completed: March 20, 2002, 01:30:37 Job time: 6503 sec

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